21st Century Supply Chain Survey Data
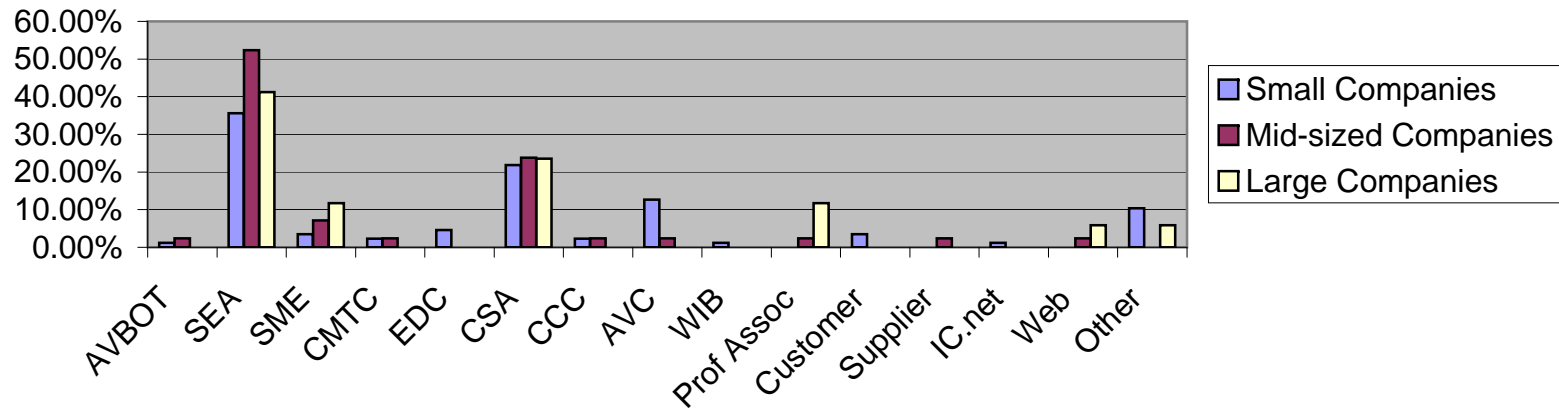
WIRED Task 2.1

Prepared by Antelope Valley College

21st Century Supply Chain Transformation Survey Data
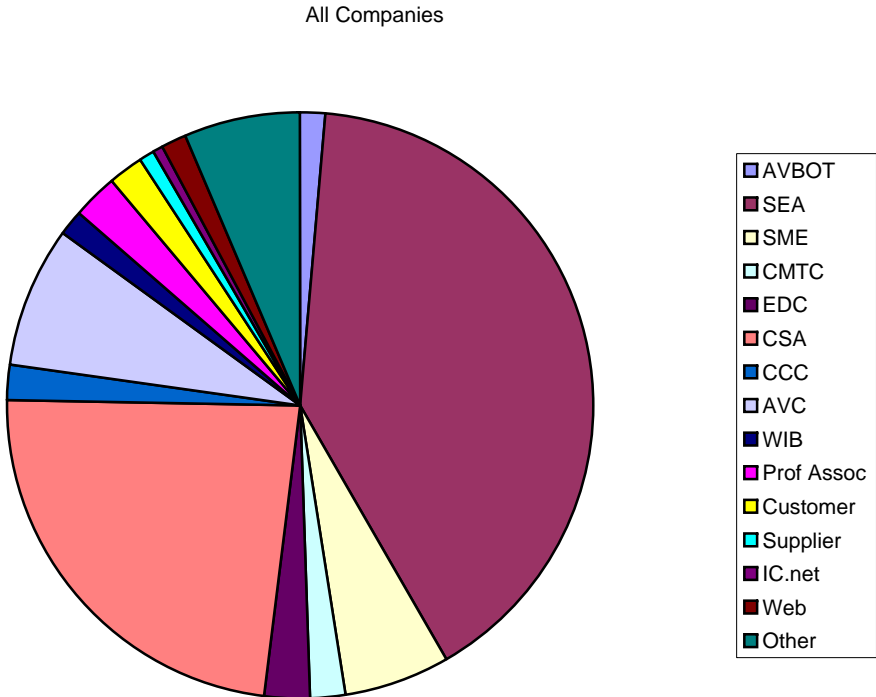
How were you referred to this survey?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
AVBOT Antelope Valley Board of Trade	1.15%	2.38%	0.00%		1.30%
Supplier Excellence Alliance	35.63%	52.38%	41.18%		40.26%
SME Society of Manufacturing Engineers	3.45%	7.14%	11.76%		5.84%
CMTC CA Manufacturing Tech.Consulting	2.30%	2.38%	0.00%		1.95%
Economic Development Corporation	4.60%	0.00%	0.00%		2.60%
CSA California Space Authority	21.84%	23.81%	23.53%		23.38%
California Community Colleges	2.30%	2.38%	0.00%		1.95%
AVC Antelope Valley College	12.64%	2.38%	0.00%		7.79%
Workforce Investment Board	1.15%	0.00%	0.00%		1.30%
Professional association	0.00%	2.38%	11.76%		2.60%
One of our customers	3.45%	0.00%	0.00%		1.95%
One of our suppliers	0.00%	2.38%	0.00%		0.65%
InnovateCalifornia.net	1.15%	0.00%	0.00%		0.65%
Web Search	0.00%	2.38%	5.88%		1.30%
Other (please specify)	10.34%	0.00%	5.88%		6.49%

How were you refered to this survey?

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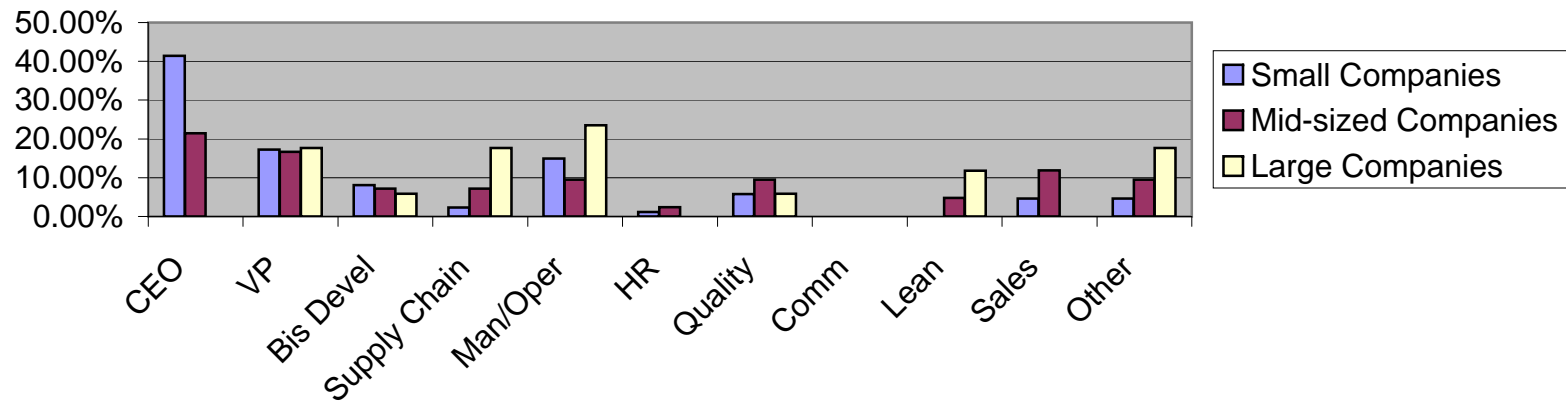# 21st Century Supply Chain Transformation Survey Data

All Companies

Web Search
Economic Development Corporation
AVC Antelope Valley College
Supplier Excellence Alliance
Professional association
InnovateCalifornia.net
WTAAC
USC
Western TAAC
Don't know
Workforce Investment Board
CMTC California Manufacturing Technology
Consulting
California Community Colleges
AVBOT Antelope Valley Board of Trade
unknown

South Bay Economic Development Partnership
SAS Supplier Symposium
One of our customers
SBEDP
One of our suppliers
Email
CSA California Space Authority
SME Society of Manufacturing Engineers

Legend:
- AVBOT
- SEA
- SME
- CMTC
- EDC
- CSA
- CCC
- AVC
- WIB
- Prof Assoc
- Customer
- Supplier
- IC.net
- Web
- Other

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| What is your role in your company?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
CEO/President	41.38%	21.43%	0.00%	30.52%
Vice President/Management	17.24%	16.67%	17.65%	17.53%
Business Development	8.05%	7.14%	5.88%	7.14%
Supply Chain/Procurement	2.30%	7.14%	17.65%	5.19%
Manufacturing/Operations	14.94%	9.52%	23.53%	13.64%
Human Resources	1.15%	2.38%	0.00%	1.95%
Quality Assurance	5.75%	9.52%	5.88%	7.14%
Communications	0.00%	0.00%	0.00%	0.00%
Lean	0.00%	4.76%	11.76%	3.25%
Sales	4.60%	11.90%	0.00%	6.49%
Other (please specify)	4.60%	9.52%	17.65%	7.14%

What is your role in you company?

Manufacturing/Operations
Quality Assurance
Advance Manufacturing
manuf engineer
CEO/President
Business Development
Vice President/Management
Human Resources
Engineering Sales Mgr.
Sales
CTO
Lean
Supply Chain/Procurement
Procurement/Operations/Quality
Technology Development Director
Director Edu
Applications Engineering
Teacher,   FIRST Robotics Program
Training
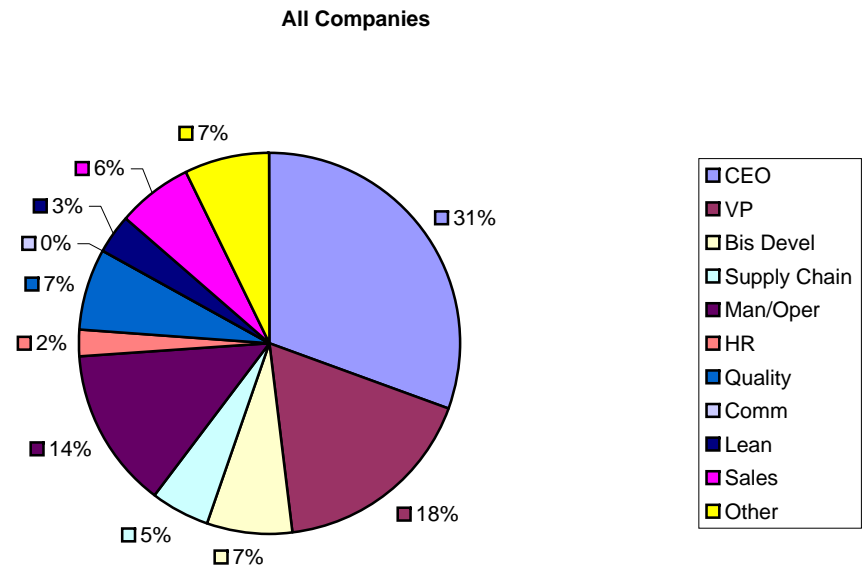
All Companies

Pie chart "All Companies" with values: 31%, 18%, 7%, 5%, 14%, 2%, 7%, 0%, 3%, 6%, 7%

Legend:
- CEO
- VP
- Bis Devel
- Supply Chain
- Man/Oper
- HR
- Quality
- Comm
- Lean
- Sales
- Other

Please indicate the most accurate current description of supply chain integration with your company's					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Integration is efficient, requirements and quality flow-downs are smooth and supply chain issues do not negatively affect cost, quality or delivery.	37.21%	28.21%	17.65%		33.11%
Supply chain issues negatively affect our cost, quality and on time delivery metrics.	39.53%	48.72%	52.94%		42.57%
Supply chain integration needs some improvement; please specify your highest concern.	23.26%	23.08%	29.41%		24.32%

Please indicate the most accurate current description of supply chain integration with your company's customers and/or suppliers:
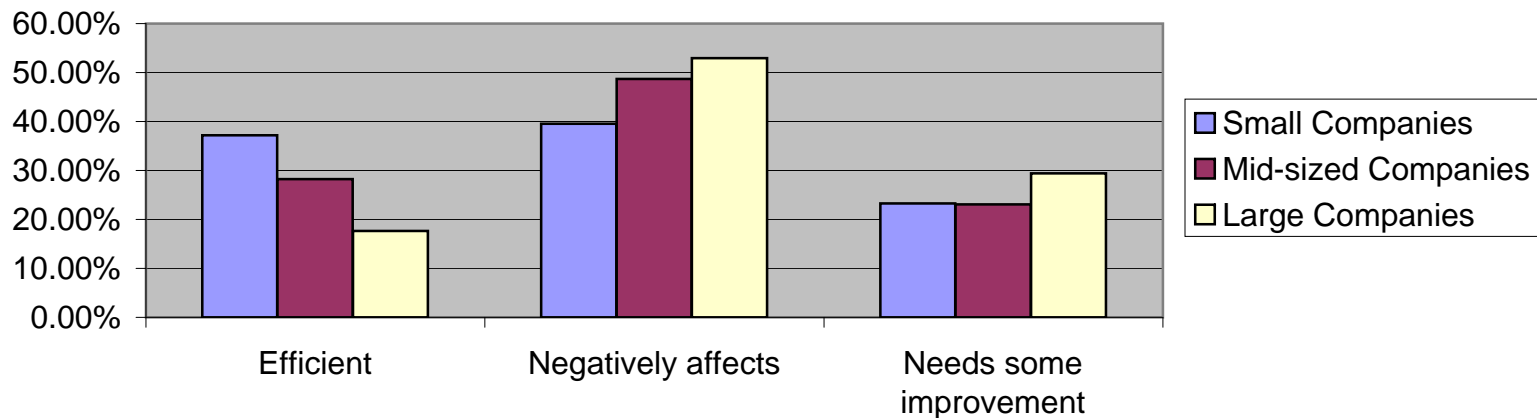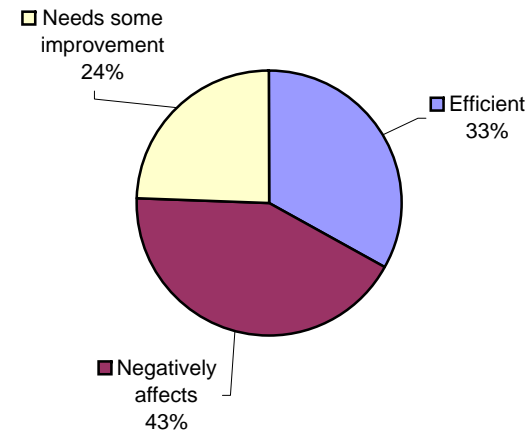
21st Century Supply Chain Transformation Survey Data

Highest Concerns
Capacity
consistent cost and lead time
Flow Down Requirements are incomplete/inaccurate
Always improving
Not getting RFQ's
lead-time on sub-assy
client support
common communication and ordering
COMMUNICATION
poor forecasting

QUALITY IS USUALLY OUR BIGGEST ISSUE WHICH IS WHY
OUR PEER GROUP (7 MACHINE SHOPS) ARE POOLING
OUR RESOURCES FOR A SUPPLY CHAIN MANAGER IN
OUR AREA TO HELP US MANAGE OUR SUPPLIERS
sole sourced suppliers with long lead times
Metal parts suppliers (aerospace)
short term delivery of engines
Single points of failure - no redundancy
uniformity within industry in expectations re: quality
Standard operating Procedures
conformable parts, good drawings
Cust side: need demand visibility. Supp side: need status
visibility
supply chain integrators have a lack of understanding about the
specific products we produce
cost and quality
Minor issues with SOME customers: Unclear configuration-
unwieldy flow-downs
Quality and delivery
Storing finished parts for prime assemblers
Vertical integration
Delivery Time
Accurate forecasting
communication
Customer response time
it is typically slow
Better integration in work

Please indicate the most accurate current description of supply chain
integration with your company's customers and/or suppliers

Needs some
improvement
24%

Efficient
33%

Negatively
affects
43%

Build to forecast is required by Boeing, but they cannot
provide accurate forecasts
Inconsistent frequency of contact both upstream and
downstream. Supply chain used on an as needed or
as demanded basis.

21st Century Supply Chain Transformation Survey Data

Approximately what percentage of your company revenue is sales to the Aerospace industry annually?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
0%	9.20%	2.44%	11.76%	7.84%
25%	11.49%	14.63%	0.00%	11.76%
50%	14.94%	12.20%	5.88%	12.42%
75%	24.14%	31.71%	5.88%	25.49%
100%	36.78%	31.71%	58.82%	36.60%
Don't know	3.45%	7.32%	17.65%	5.88%

Approximately what percentage of your company revenue is sales to the Aerospace industry annually?

All Companies

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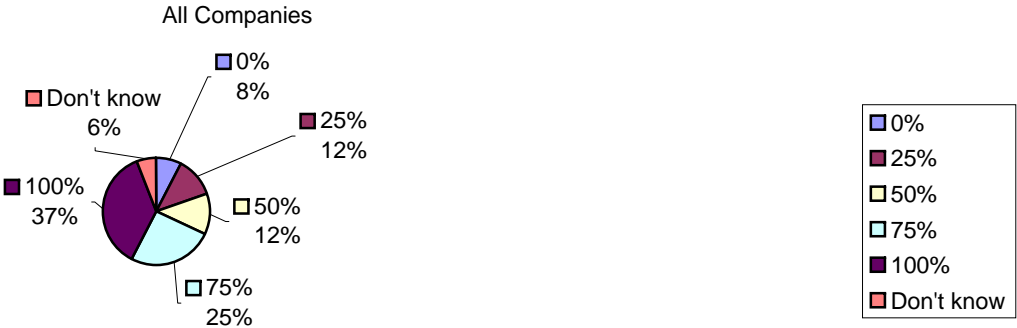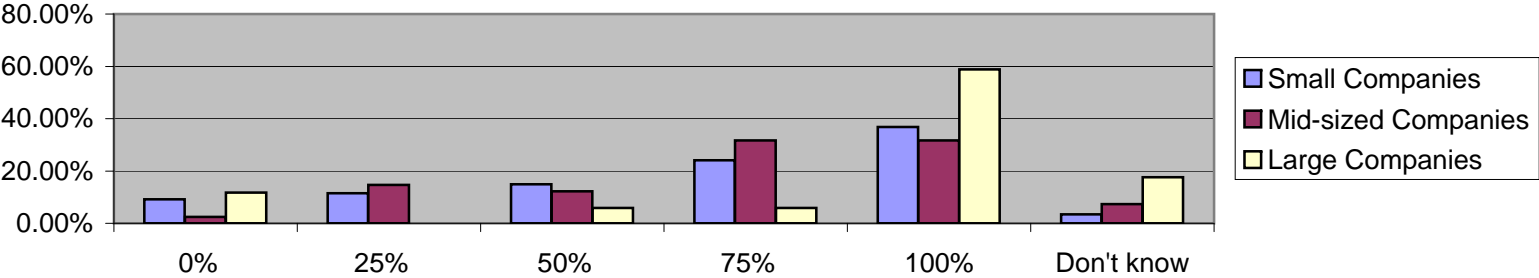
21st Century Supply Chain Transformation Survey Data

What other major industries besides Aerospace does your company serve? (Please be sure to check an answer in

Small Companies

answer options	None	<10%	10-25%	25-50%	50-75%	75-100%	Rating Average
Automotive	33	14	7	2	0	0	1.61
Electronics	30	11	5	11	4	2	2.27
Consumer	33	10	6	0	0	0	1.45
Other	24	10	10	7	5	8	2.73

Mid-sized Companies

answer options	None	<10%	10-25%	25-50%	50-75%	75-100%	Rating Average
Automotive	12	5	6	2	0	0	1.92
Electronics	9	10	2	2	3	0	2.23
Consumer	11	5	4	1	0	1	1.95
Other	9	8	6	3	2	1	2.45

Large Companies

answer options	None	<10%	10-25%	25-50%	50-75%	75-100%	Rating Average
Automotive	8	3	0	1	0	0	1.5
Electronics	7	2	2	0	0	0	1.55
Consumer	8	0	0	1	1	0	1.7
Other	5	4	1	2	0	0	2

All Companies

answer options	None	<10%	10-25%	25-50%	50-75%	75-100%	Rating Average
Automotive	54	25	14	5	0	0	1.69
Electronics	47	25	12	13	7	2	2.19
Consumer	53	16	11	2	1	1	1.63
Other	39	23	17	13	7	10	2.6

Others
Science institutes and universtities
Oil & Gas, Medical, Motorsports
Medical Device Manufacturers
other manufacturers (lighting fixtures, sound components, etc.
General Commercial Industrial
medical

Marine Defense, Powewr Generation
Survey & Mining
Retail Store Industry
Industrial
Industrial 25%, Communications 25%
Fluid and valve
medical/defense
Medical
Optical Manufacturing Industry
Commercial machining
Mining Industry
Industrial & Marine
Space Programs
Aluminum manufacturing industry
Nuclear
Power Generation
Gov. Industrial, Sports, Inventors, Etc.
Govt agencies
safety
Semi-Cap, Oil & Gas, Medical
Construction
military
High rel industrial
Medical and Industrial
Federal& DoD Agencies
industrial, medical, defense
Medical & Defense
Oil and Gas, Trucking
Heavy Mining Equipment

What other major industries besides Aerospace does your company serve?
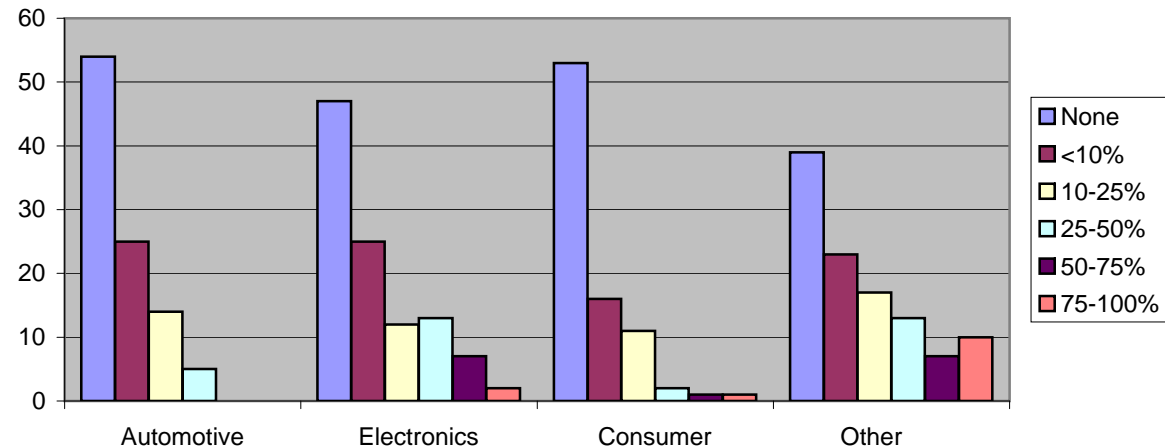
Network and Systems Solutions
military, commercial aircraft, and
military, industrial, cryogenic, marine, Subway Systems
We are a school and a school

Construction
General manufacturing & assorted
n/a
Industrial commercial gaskets
Biomedical; various others
Semiconductor
Medical and Oil Field
automation
Medical
Shipbuilding, Steel, Petrochemical plastics
Military ground equipment
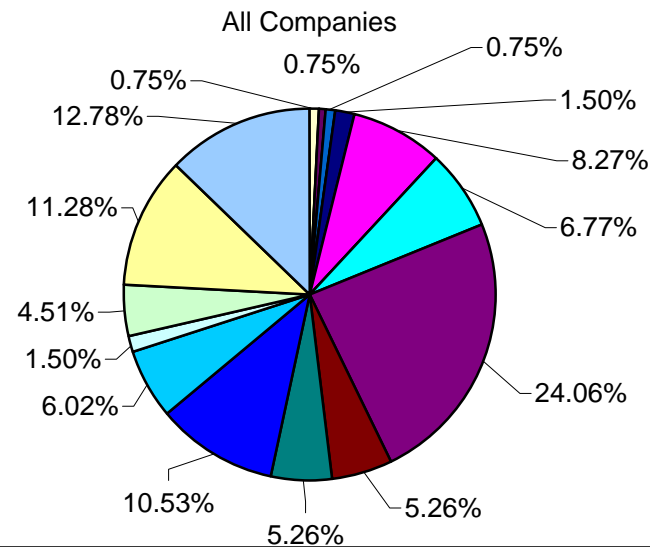Telecommunications

Defense (Naval Shipbuilding), Industrial
Military Contractors
Education
test and measurement
aviation
various
ground support, entertainment
oil and gas equipment, agricultural and R&D, Laser
Heavy Construction Equipment
aerospace

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Select your Primary NAIC code (First 3 digits):				
answer options	**Small Companies**	**Mid-sized Companies**	**Large Companies**	**All Companies**
313 -- Textile Mills	0.00%	0.00%	0.00%	0.00%
314 -- Textile Product Mills	0.00%	0.00%	0.00%	0.00%
315 -- Apparel Manufacturing	0.00%	2.63%	0.00%	0.75%
316 -- Leather and Allied Product Manufacturing	0.00%	0.00%	0.00%	0.00%
321 -- Wood Product Manufacturing	1.33%	0.00%	0.00%	0.75%
322 -- Paper Manufacturing	0.00%	0.00%	0.00%	0.00%
323 -- Printing and Related Support Activities	1.33%	0.00%	0.00%	0.75%
324 -- Petroleum and Coal Products Manufacturing	0.00%	0.00%	0.00%	0.00%
325 -- Chemical Manufacturing	1.33%	0.00%	6.67%	1.50%
326 -- Plastics and Rubber Products Manufacturing	4.00%	13.16%	13.33%	8.27%
327 -- Nonmetallic Mineral Product Manufacturing	0.00%	0.00%	0.00%	0.00%
331 -- Primary Metal Manufacturing	6.67%	10.53%	0.00%	6.77%
332 -- Fabricated Metal Product Manufacturing	24.00%	31.58%	6.67%	24.06%
333 -- Machinery Manufacturing	8.00%	0.00%	6.67%	5.26%
334 -- Computer and Electronic Product Manufacturing	5.33%	7.89%	0.00%	5.26%
335 -- Electrical Equipment, Appliance, and Component Manufacturing	12.00%	7.89%	6.67%	10.53%
336 -- Transportation Equipment Manufacturing	9.33%	2.63%	0.00%	6.02%
337 -- Furniture and Related Product Manufacturing	0.00%	0.00%	6.67%	1.50%
339 -- Miscellaneous Manufacturing	5.33%	5.26%	0.00%	4.51%
Don't know	8.00%	10.53%	33.33%	11.28%
Other (please specify)	13.33%	7.89%	20.00%	12.78%

21st Century Supply Chain Transformation Survey Data

Others

372,437,283,990
359
EDU
repair station
423
optics
Electronics Development
Commercial passenger jets
Education & Training
Assembly and Integration

541
541380
811310

All Companies

0.75%
0.75%
0.75%
0.75%
1.50%
8.27%
12.78%
11.28%
6.77%
4.51%
1.50%
6.02%
24.06%
10.53%
5.26%
5.26%

- 313 -- Textile Mills
- 314 -- Textile Product Mills
- 315 -- Apparel Manufacturing
- 316 -- Leather and Allied Product Manufacturing
- 321 -- Wood Product Manufacturing
- 322 -- Paper Manufacturing
- 323 -- Printing and Related Support Activities
- 324 -- Petroleum and Coal Products Manufacturing
- 325 -- Chemical Manufacturing
- 326 -- Plastics and Rubber Products Manufacturing
- 327 -- Nonmetallic Mineral Product Manufacturing
- 331 -- Primary Metal Manufacturing
- 332 -- Fabricated Metal Product Manufacturing
- 333 -- Machinery Manufacturing
- 334 -- Computer and Electronic Product Manufacturing
- 335 -- Electrical Equipment, Appliance, and Component Manufacturing
- 336 -- Transportation Equipment Manufacturing
- 337 -- Furniture and Related Product Manufacturing
- 339 -- Miscellaneous Manufacturing
- Don't know
- Other (please specify)

21st Century Supply Chain Transformation Survey Data

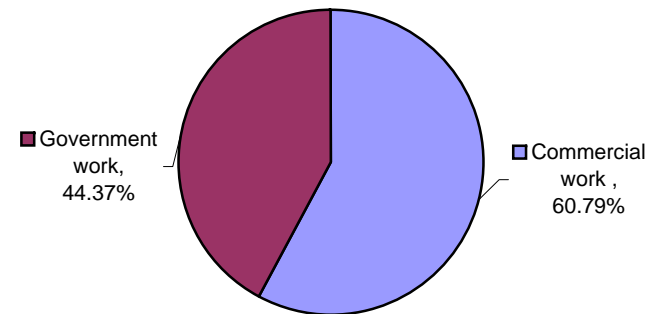**Approximately what percent of time does your company spend doing the following? (Must**

Small Companies

answer options	Response Average
% Commercial work	63.01
% Government work	41.36

Mid-sized Companies

answer options	Response Average
% Commercial work	54.26
% Government work	47.13

Large Companies

answer options	Response Average
% Commercial work	68.13
% Government work	45.2

All Companies

answer options	Response Average
% Commercial work	60.79
% Government work	44.37

All Companies Response Average

Government work, 44.37%
Commercial work, 60.79%

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Approximately what percentage of your company's business in conducted with customers or suppliers in the state of California?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
0%	0.00%	0.00%	15.38%		1.65%
25%	39.19%	45.16%	23.08%		38.02%
50%	24.32%	25.81%	23.08%		25.62%
75%	20.27%	12.90%	23.08%		19.01%
100%	9.46%	3.23%	0.00%		6.61%
Don't know	6.76%	12.90%	15.38%		9.09%

Approximately what percentage of your company's business in conducted with customers or suppliers in the state of California?
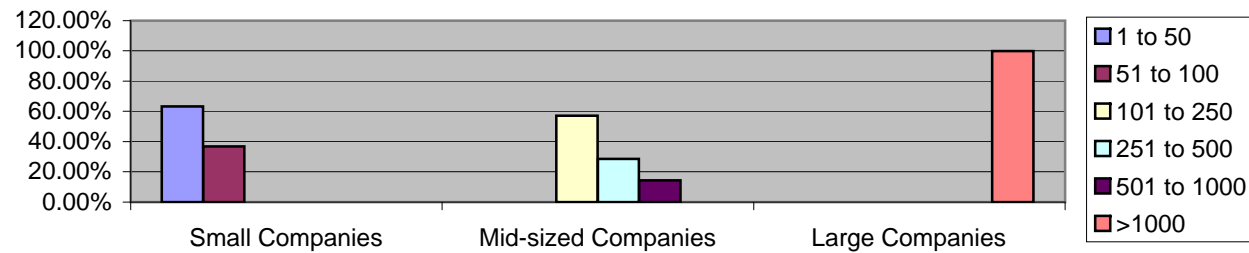

All Companies

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21st Century Supply Chain Transformation Survey Data

answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Approximately how many employees does your company currently employ in total?					
1 to 50	63.22%	0.00%	0.00%		37.67%
51 to 100	36.78%	0.00%	0.00%		21.92%
101 to 250	0.00%	57.14%	0.00%		16.44%
251 to 500	0.00%	28.57%	0.00%		8.22%
501 to 1000	0.00%	14.29%	0.00%		4.11%
>1000	0.00%	0.00%	100.00%		11.64%

Approximately how many employees does your company currently employ in total?

All Companies

21st Century Supply Chain Transformation Survey Data

Approximately what percent of your company's revenue comes from...(Please be sure to check an answer in each row.)						
Small Companies						
answer options	None	<25%	25-50%	50-75%	75-100%	Don't know
Systems Integration/final assembly	24	9	10	3	11	1
Sub assembly	19	23	12	5	3	1
Supplying parts	14	8	7	7	31	1
Supplying material	29	10	2	1	2	1
Special processing	20	24	1	2	7	1
Mid-sized Companies						
answer options	None	<25%	25-50%	50-75%	75-100%	Don't know
Systems Integration/final assembly	9	6	5	3	3	2
Sub assembly	2	10	11	3	3	1
Supplying parts	3	6	4	10	8	1
Supplying material	13	5	2	0	1	1
Special processing	9	10	1	2	0	1
Large Companies						
answer options	None	<25%	25-50%	50-75%	75-100%	Don't know
Systems Integration/final assembly	3	2	0	2	5	1
Sub assembly	3	5	2	0	1	1
Supplying parts	4	4	1	2	2	1
Supplying material	5	3	1	1	2	1
Special processing	5	4	1	0	0	2
All Companies						
answer options	None	<25%	25-50%	50-75%	75-100%	Don't know
Systems Integration/final assembly	36	17	15	8	20	4
Sub assembly	24	38	25	8	7	3
Supplying parts	21	18	12	20	41	3
Supplying material	47	18	5	2	5	3
Special processing	34	38	3	5	7	4

21st Century Supply Chain Transformation Survey Data

- Special processing 21%
- Systems Integration/final assembly 22%
- Sub assembly 15%
- Supplying parts 13%
- Supplying material 29%
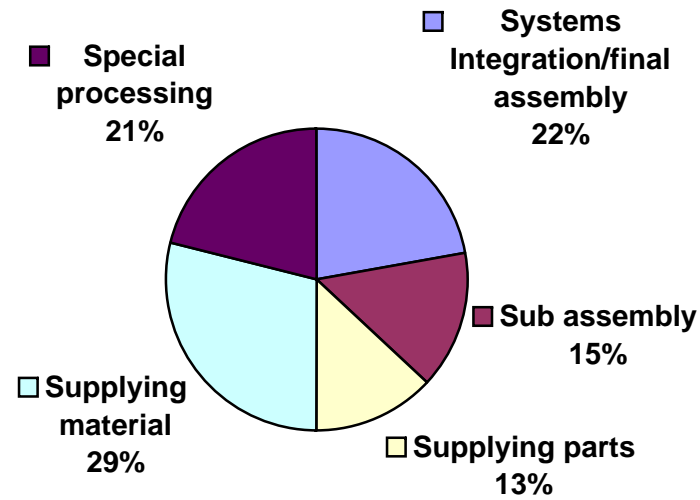
Percent of your respondents revenue that comes fromeach of the following.

Legend:
- Systems Integration/final assembly
- Sub assembly
- Supplying parts
- Supplying material
- Special processing

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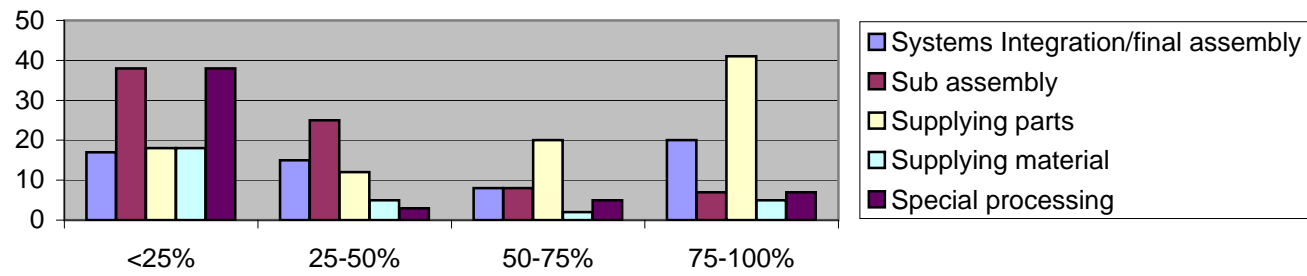
21st Century Supply Chain Transformation Survey Data

Please indicate the Information Technology Management systems your company uses internally, with suppliers and with customers. (Check all that apply, minimum of one in each row)

Small Companies

answer options	internally	w/ suppliers	w/ customers	Not currently using	Don't know
ERP/MRP (Enterprise Recourse Planning/Materials Resource Planning)	35	10	14	24	6
e-Procurement	9	13	32	22	5
PDM/PLM (Product Definition Management/Product Life Management)	10	4	11	42	6
MES (Manufacturing Execution System/Shop floor control)	26	1	1	34	6
CRM (Customer Relationship Management)	18	3	13	31	5
SPC (Statistical Process Control)	32	4	10	25	4
CAD (Computer-aided Design)	48	22	28	15	4
CAM (Computer-aided Manufacturing)	30	9	11	31	6

Mid-sized Companies

answer options	internally	w/ suppliers	w/ customers	ot currently usin	Don't know
ERP/MRP (Enterprise Recourse Planning/Materials Resource Planning)	29	10	11	5	0
e-Procurement	2	8	12	8	5
PDM/PLM (Product Definition Management/Product Life Management)	2	1	4	15	10
MES (Manufacturing Execution System/Shop floor control)	13	2	3	12	6
CRM (Customer Relationship Management)	8	0	8	11	6
SPC (Statistical Process Control)	27	9	7	3	2
CAD (Computer-aided Design)	29	11	21	0	1
CAM (Computer-aided Manufacturing)	14	8	10	10	5

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21st Century Supply Chain Transformation Survey Data

Large Companies

answer options	internally	w/ suppliers	w/ customers	ot currently usin	Don't know
ERP/MRP (Enterprise Recourse Planning/Materials Resource Planning)	13	4	2	0	0
e-Procurement	5	7	3	2	1
PDM/PLM (Product Definition Management/Product Life Management)	6	2	1	3	3
MES (Manufacturing Execution System/Shop floor control)	6	0	0	4	2
CRM (Customer Relationship Management)	1	1	3	4	4
SPC (Statistical Process Control)	10	6	4	0	1
CAD (Computer-aided Design)	11	5	8	1	0
CAM (Computer-aided Manufacturing)	10	4	5	3	0

All Companies

answer options	internally	w/ suppliers	w/ customers	ot currently usin	Don't know
ERP/MRP (Enterprise Recourse Planning/Materials Resource Planning)	77	24	27	29	7
e-Procurement	16	28	47	32	12
PDM/PLM (Product Definition Management/Product Life Management)	18	7	16	60	20
MES (Manufacturing Execution System/Shop floor control)	45	3	4	50	15
CRM (Customer Relationship Management)	28	4	24	46	16
SPC (Statistical Process Control)	70	19	21	28	7
CAD (Computer-aided Design)	90	38	57	16	5
CAM (Computer-aided Manufacturing)	56	21	26	44	11

Please indicate the Information Technology Management systems your company uses internally, with suppliers and with customers.
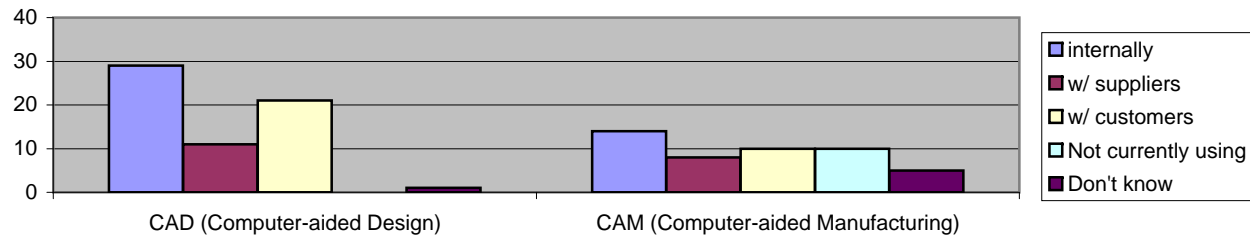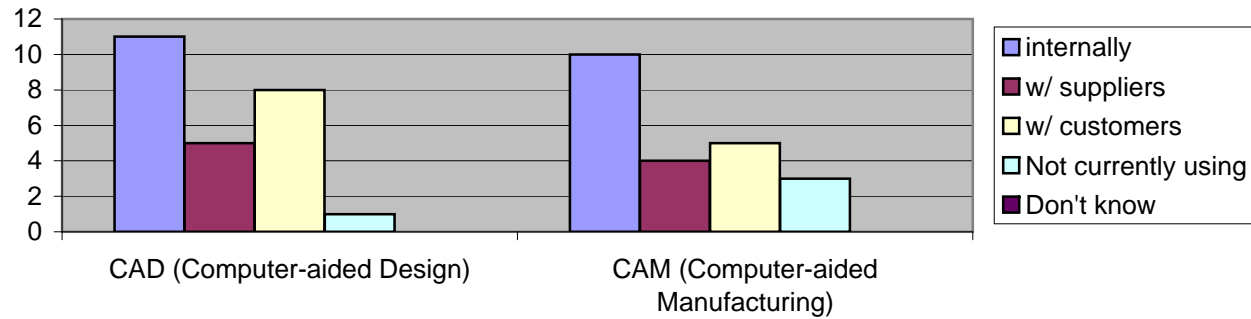

Legend: ERP/MRP, e-Procurement, PDM/PLM, MES, CRM, SPC, CAD, CAM

Categories: internally, w/ suppliers, w/ customers, Not currently using, Don't know

Small Companies

Legend: internally, w/ suppliers, w/ customers, Not currently using, Don't know

Categories: CAD (Computer-aided Design), CAM (Computer-aided Manufacturing)

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21st Century Supply Chain Transformation Survey Data

Mid-sized Companies

Large Companies

All Companies

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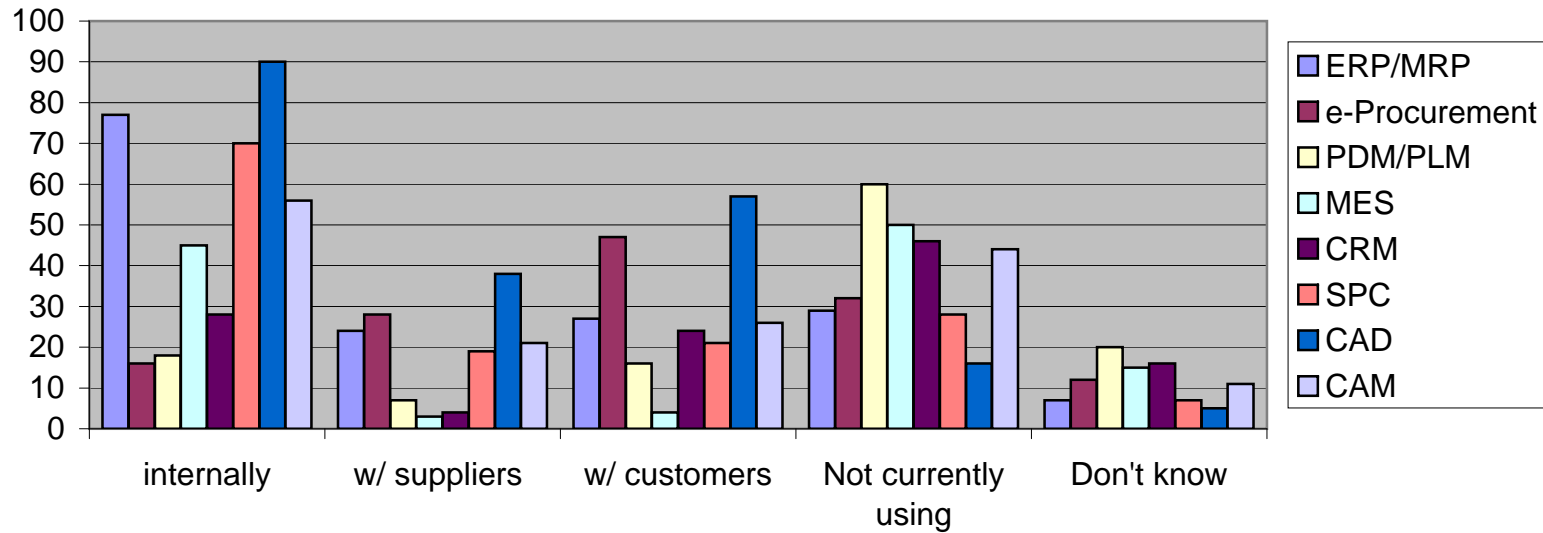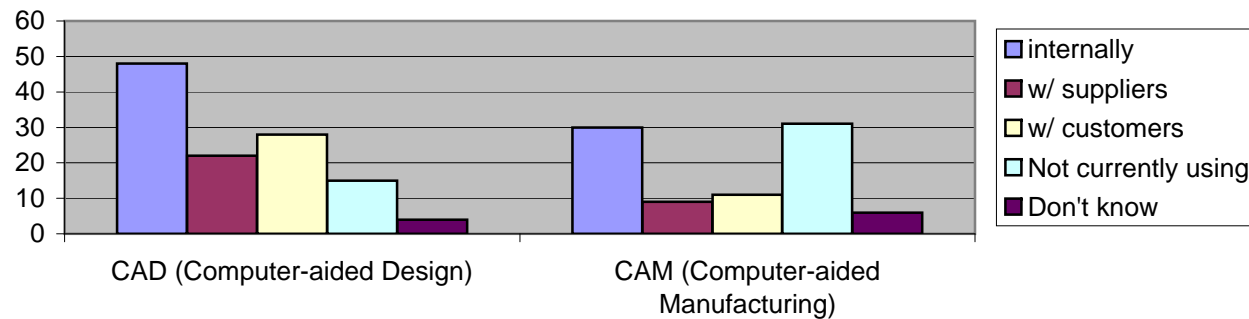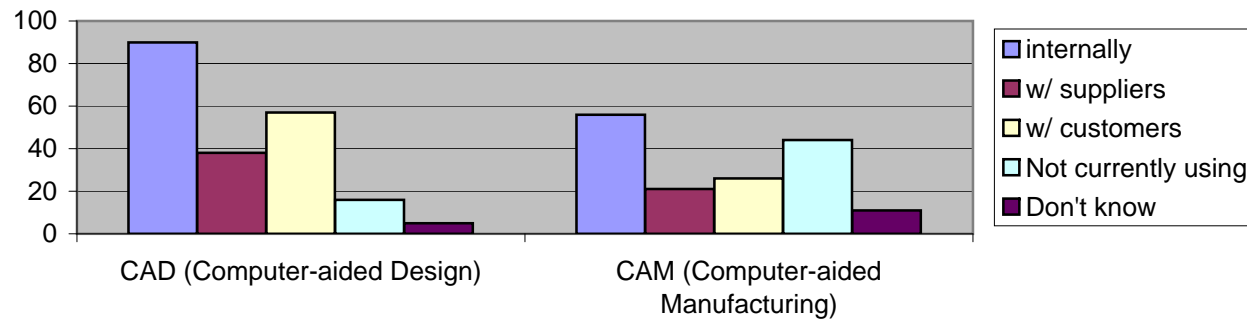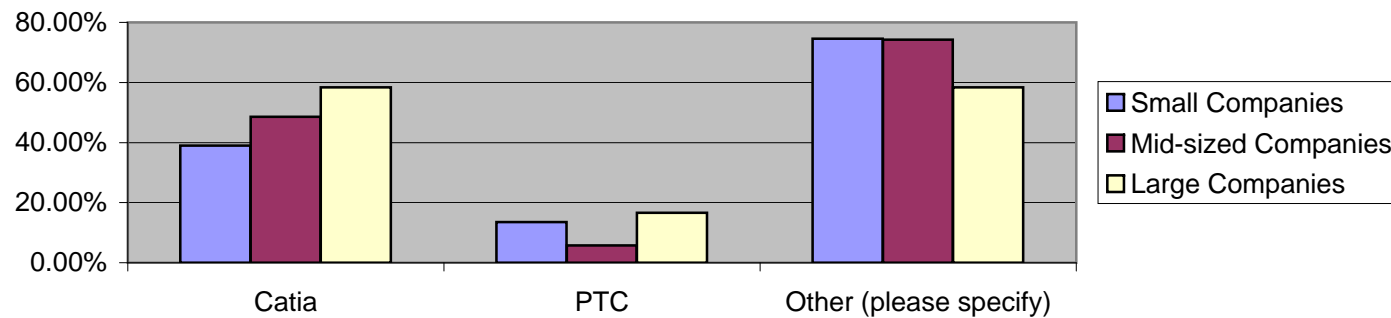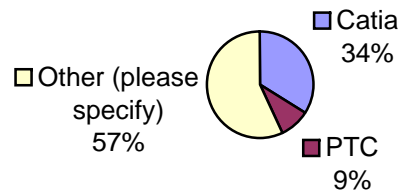
21st Century Supply Chain Transformation Survey Data

If you are using CAD/CAM, what programs does your company use? (Check all that apply)				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
Catia	38.98%	48.57%	58.33%	43.52%
PTC	13.56%	5.71%	16.67%	12.04%
Other (please specify)	74.58%	74.29%	58.33%	73.15%

If you are using CAD/CAM, what programs does your company use?

All Companies

Catia 34%

Other (please specify) 57%

PTC 9%

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Others List
Algor
Alibre
AutoCAD
Autodesk Inventor
CabCAD
CADCODE
Cadence
cadkey
Esprit
Genesis
Geo Path
GibbsCam
IGI
Keycreator
Mastercam
Mentor
ncl
NX (UGS Product)
Orcad
part maker
ProE
Solid Works
STK
SURFCAM
Turbocad
Unigraphics

Does your company use Exostar, the Aerospace & Defense Global trading Exchange?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Yes but only when requested to.	27.71%	54.05%	20.00%		33.33%
Yes with suppliers and customers.	19.28%	16.22%	20.00%		18.84%
No	51.81%	27.03%	46.67%		44.93%
Other (please specify)	1.20%	2.70%	13.33%		2.90%

Does your company use Exostar, the Aerospace & Defense Global trading Exchange?
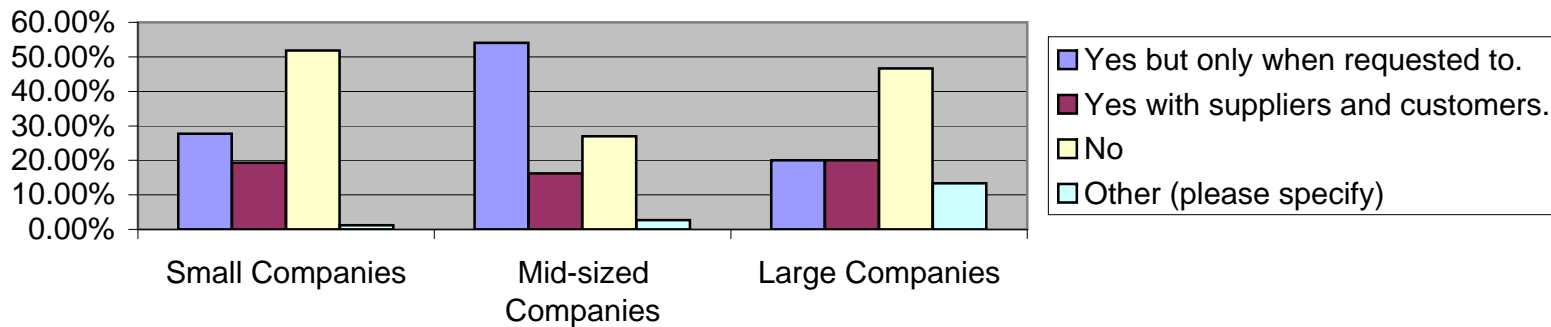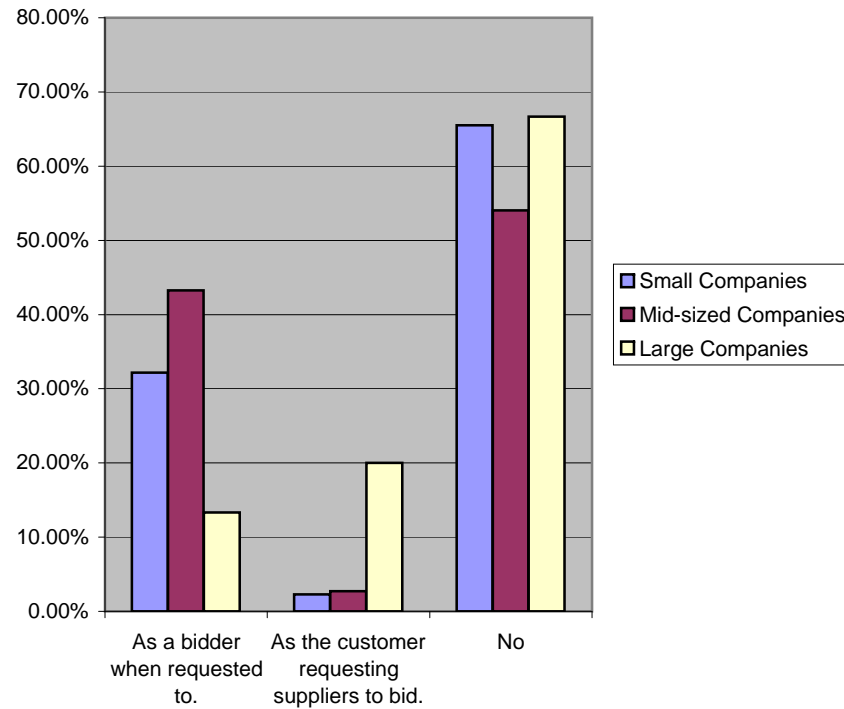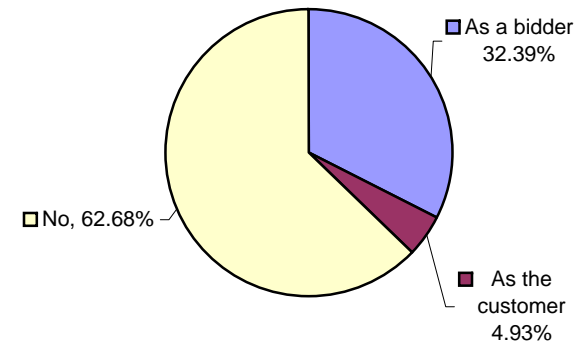

Others
with Customers
dont know
Trial basis only
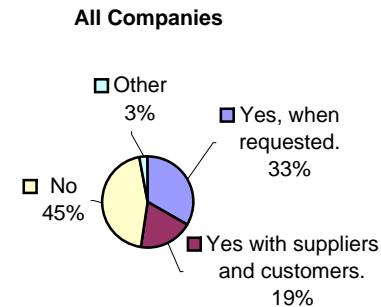
All Companies

21st Century Supply Chain Transformation Survey Data

Has your company participated in an electronic reverse auction?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
As a bidder when requested to.	32.18%	43.24%	13.33%	32.39%
As the customer requesting suppliers to bid.	2.30%	2.70%	20.00%	4.93%
No	65.52%	54.05%	66.67%	62.68%

Has your company participated in an electronic reverse auction?

- Small Companies
- Mid-sized Companies
- Large Companies

All Companies

- As a bidder 32.39%
- No, 62.68%
- As the customer 4.93%

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Please be sure to check an answer for each of the following questions.				
Small Companies				
answer options	**Yes**	**No**	**Needs improvement**	**Don't konw**
Does your company have a documented corporate strategy?	47	19	18	1
Does the corporate strategy include a supply chain strategy?	26	46	8	5
Is it communicated to all employees?	34	38	10	1
Does your company sell or buy products internationally?	63	22	0	0
Has your company identified its core competencies and unique value in the supply chain?	59	16	7	3
Does your company have experience controlling proprietary customer information?	78	7	0	0
Is your company cleared to do classified government work?	27	45	6	6
Is your company ITAR (International Traffic in Arms Regulations) compliant?	49	25	0	10
Does your company use global sourcing and logistics?	27	52	2	4
Does your company have contingency plans in place for loss of people, IT and supply chain disruption?	35	28	18	3
Do your key suppliers have contingency plans in place for loss of people, IT and supply chain disruption?	11	14	13	46
Does your company have specific processes in place to prevent counterfeit parts from getting to the customer?	45	26	5	8
Does your company have an effective Injury and Illness Prevention Program as required by state OSHA standards (Title 8, California Code of Regulations, Section 3203)?	67	9	5	4

21st Century Supply Chain Transformation Survey Data

Mid-sized Companies				
answer options	Yes	No	Needs improvement	Don't konw
Does your company have a documented corporate strategy?	32	0	5	1
Does the corporate strategy include a supply chain strategy?	22	6	7	3
Is it communicated to all employees?	23	6	8	1
Does your company sell or buy products internationally?	32	5	0	1
Has your company identified its core competencies and unique value in the supply chain?	32	1	3	2
Does your company have experience controlling proprietary customer information?	34	2	2	0
Is your company cleared to do classified government work?	21	11	0	5
Is your company ITAR (International Traffic in Arms Regulations) compliant?	26	8	0	3
Does your company use global sourcing and logistics?	16	13	7	1
Does your company have contingency plans in place for loss of people, IT and supply chain disruption?	24	5	7	2
Do your key suppliers have contingency plans in place for loss of people, IT and supply chain disruption?	10	2	9	16
Does your company have specific processes in place to prevent counterfeit parts from getting to the customer?	18	8	6	5
Does your company have an effective Injury and Illness Prevention Program as required by state OSHA standards (Title 8, California Code of Regulations, Section 3203)?	30	2	3	2

21st Century Supply Chain Transformation Survey Data

| Large Companies				
answer options	Yes	No	Needs improvement	Don't konw
Does your company have a documented corporate strategy?	17	0	0	0
Does the corporate strategy include a supply chain strategy?	17	0	0	0
Is it communicated to all employees?	9	2	4	2
Does your company sell or buy products internationally?	17	0	0	0
Has your company identified its core competencies and unique value in the supply chain?	14	0	0	3
Does your company have experience controlling proprietary customer information?	17	0	0	0
Is your company cleared to do classified government work?	14	1	0	2
Is your company ITAR (International Traffic in Arms Regulations) compliant?	15	0	0	2
Does your company use global sourcing and logistics?	14	2	0	0
Does your company have contingency plans in place for loss of people, IT and supply chain disruption?	14	0	2	1
Do your key suppliers have contingency plans in place for loss of people, IT and supply chain disruption?	10	1	2	4
Does your company have specific processes in place to prevent counterfeit parts from getting to the customer?	12	1	0	4
Does your company have an effective Injury and Illness Prevention Program as required by state OSHA standards (Title 8, California Code of Regulations, Section 3203)?	17	0	0	0

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21st Century Supply Chain Transformation Survey Data

All Companies				
answer options	Yes	No	Needs improvement	Don't konw
Does your company have a documented corporate strategy?	96	19	24	3
Does the corporate strategy include a supply chain strategy?	65	53	15	9
Is it communicated to all employees?	66	47	22	4
Does your company sell or buy products internationally?	113	28	0	1
Has your company identified its core competencies and unique value in the supply chain?	106	17	10	9
Does your company have experience controlling proprietary customer information?	130	9	2	1
Is your company cleared to do classified government work?	62	57	6	15
Is your company ITAR (International Traffic in Arms Regulations) compliant?	91	33	1	15
Does your company use global sourcing and logistics?	57	68	9	6
Does your company have contingency plans in place for loss of people, IT and supply chain disruption?	74	33	27	7
Do your key suppliers have contingency plans in place for loss of people, IT and supply chain disruption?	31	17	24	68
Does your company have specific processes in place to prevent counterfeit parts from getting to the customer?	76	35	11	18
Does your company have an effective Injury and Illness Prevention Program as required by state OSHA standards (Title 8, California Code of Regulations, Section 3203)?	115	11	8	7

21st Century Supply Chain Transformation Survey Data

What type of Supply Chain planning for materials does your company perform?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
3-5 years	1.30%	8.33%	23.53%		6.11%
Annual	20.78%	30.56%	35.29%		25.19%
3-month	25.97%	11.11%	5.88%		19.08%
All of the above	11.69%	25.00%	23.53%		16.79%
None	31.17%	19.44%	0.00%		24.43%
Other (please specify)	9.09%	5.56%	11.76%		8.40%

What type of Supply Chain planning for materials does your company perform?
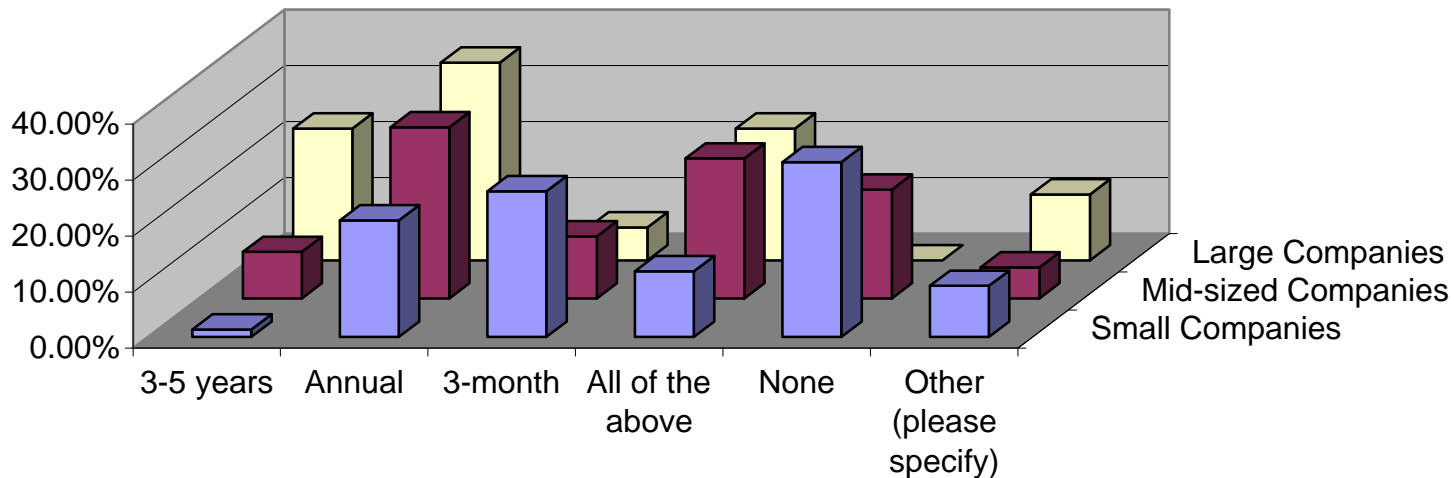
21st Century Supply Chain Transformation Survey Data

Others
don't know
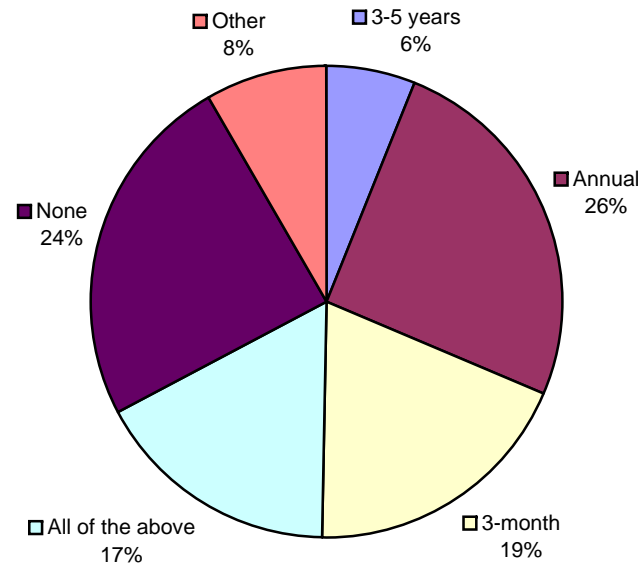Per contract
monthly
As required - project based operation
Annual and 3 month plan
Contingent on Program awards
not sure what the question is asking
we are are a special processing facility
as required

All Companies

- Other 8%
- 3-5 years 6%
- Annual 26%
- 3-month 19%
- All of the above 17%
- None 24%

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Approximately how well is inventory accuracy controlled by your company?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
>98%	45.45%	33.33%	52.94%	42.75%
>90%	32.47%	47.22%	35.29%	36.64%
<90%	22.08%	19.44%	11.76%	20.61%

Approximately how well is inventory accuracy controlled by your company?
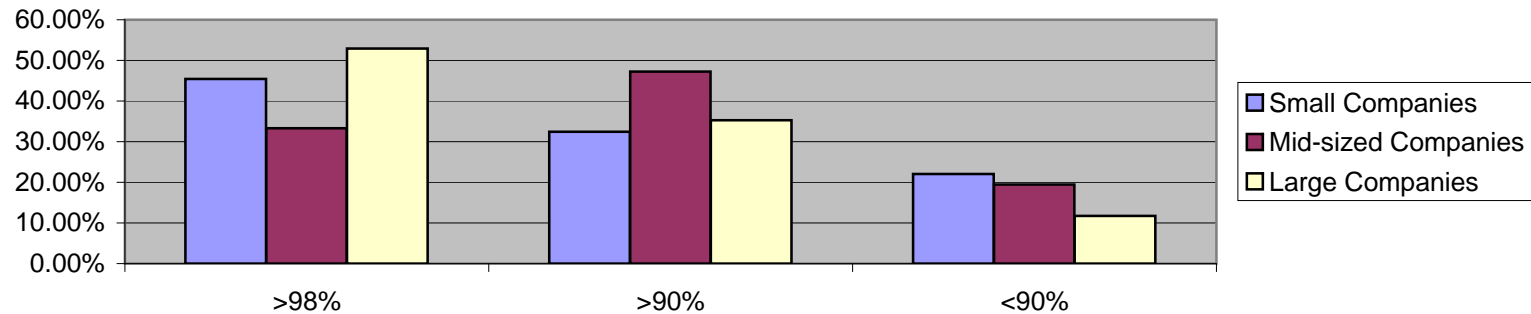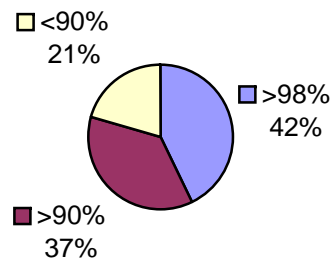
All Companies

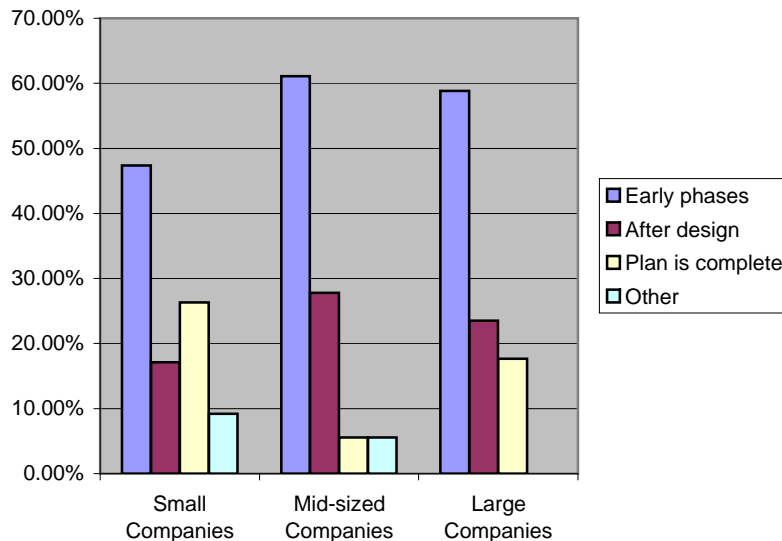Prepared by Antelope Valley College 4/22/2008
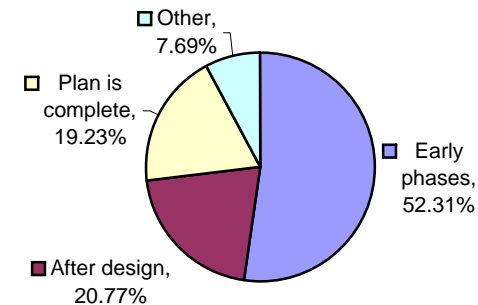
21st Century Supply Chain Transformation Survey Data

At what point in your company's product development cycle does your supply chain organization and suppliers usually get involved to collaborate?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Early phases of product development (design and/or requirement).	47.37%	61.11%	58.82%		52.31%
After design is complete, during the production planning cycle.	17.11%	27.78%	23.53%		20.77%
When production plan is complete and part orders are required.	26.32%	5.56%	17.65%		19.23%
Other (please specify)	9.21%	5.56%	0.00%		7.69%

At what point in your company's product development cycle does your supply chain organization and suppliers usually get involved to collaborate?

At what point in your company's product development cycle does your supply chain organization and suppliers usually get involved to collaborate?
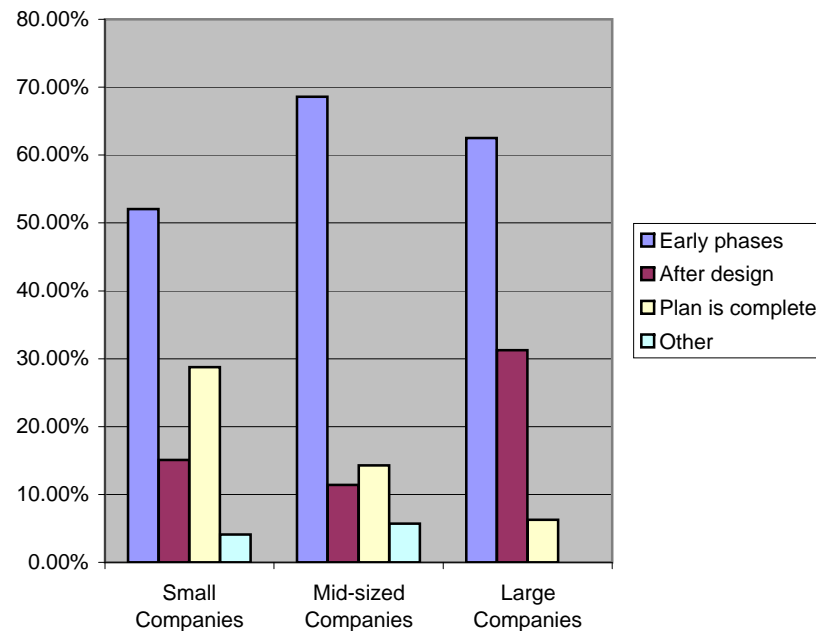

Others
We are a process provider
blank
depends on project
N/A
NO DIRECT DESIGN WORK
not developing parts
N/A
n/a
none

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21st Century Supply Chain Transformation Survey Data

At what point in your customer's product development cycle is your company invited to participate?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
Early phases of product development (design and/or requirement).	52.05%	68.57%	62.50%	57.60%
After design is complete, during the production planning cycle.	15.07%	11.43%	31.25%	16.00%
When production plan is complete and part orders are required.	28.77%	14.29%	6.25%	21.60%
Other (please specify)	4.11%	5.71%	0.00%	4.80%

At what point in your customer's product development cycle is your company invited to participate?

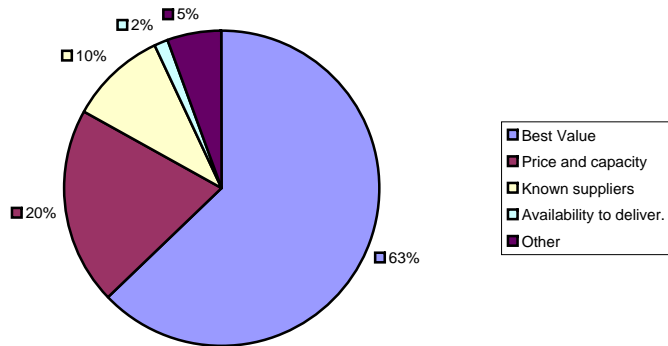At what point in your customer's product development cycle is your company invited to participate?
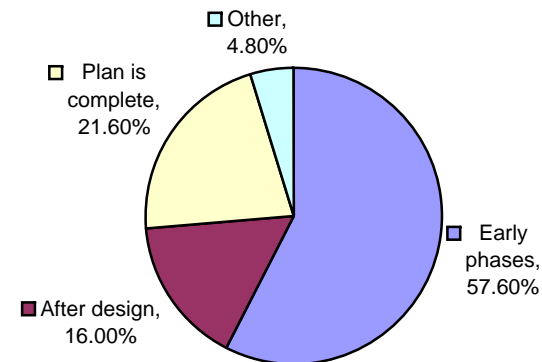
Others
all of the above
N/A
Varies by customer

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21st Century Supply Chain Transformation Survey Data

answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
What process does your company usually use to select suppliers?				
Best Value (Competitive selection process based on multiple factors including total cost, quality, delivery, stability).	57.89%	65.71%	76.47%	62.79%
Competitive selection which factors primarily price and capacity.	19.74%	22.86%	17.65%	20.16%
Usually select known suppliers without competitive bids from others.	13.16%	5.71%	5.88%	10.08%
Availability to deliver.	2.63%	0.00%	0.00%	1.55%
Other (please specify)	6.58%	5.71%	0.00%	5.43%

All Companies

- Best Value
- Price and capacity
- Known suppliers
- Availability to deliver.
- Other

What process does your company usually use to select suppliers?

- Best Value
- Price and capacity
- Known suppliers
- Availability to deliver.
- Other

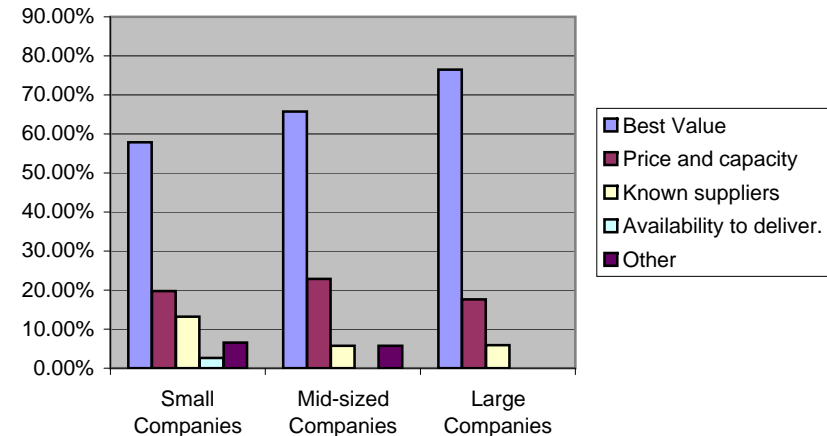**Others**
depends on specific circumstances
all the above depending on specific order-often
OEM directed procurement
Approved suppliers
only one vendor for product line
n/a; we provide a service
As a distributor, we utilize customer specified approved sources.
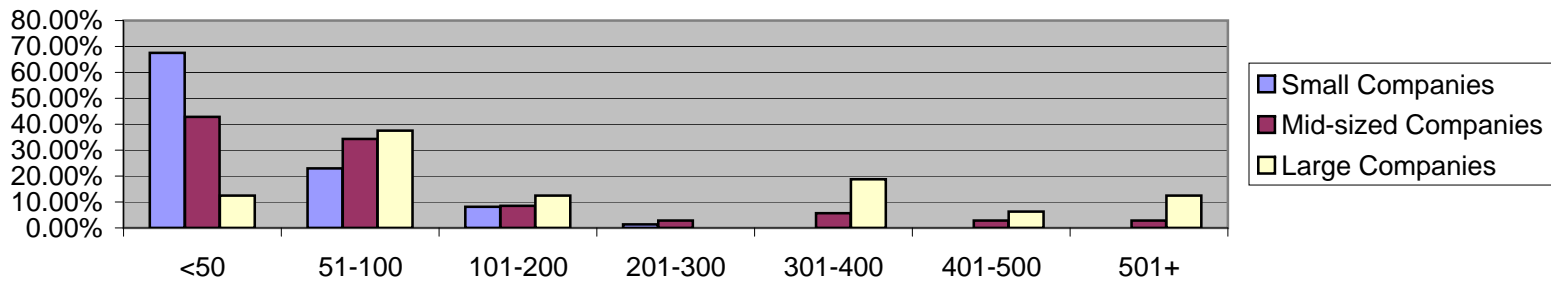Our goal is best value but often times there is only one source for special processes

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Approximately how many active suppliers/vendors does your company have in California?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
<50	67.57%	42.86%	12.50%		53.97%
51-100	22.97%	34.29%	37.50%		27.78%
101-200	8.11%	8.57%	12.50%		8.73%
201-300	1.35%	2.86%	0.00%		1.59%
301-400	0.00%	5.71%	18.75%		3.97%
401-500	0.00%	2.86%	6.25%		1.59%
501+	0.00%	2.86%	12.50%		2.38%

Approximately how many active suppliers/vendors does your company have in California?

21st Century Supply Chain Transformation Survey Data

All Companies

401-500
1.59%

501+
2.38%

301-400
3.97%

201-300
1.59%

101-200
8.73%

<50
53.97%

51-100
27.78%

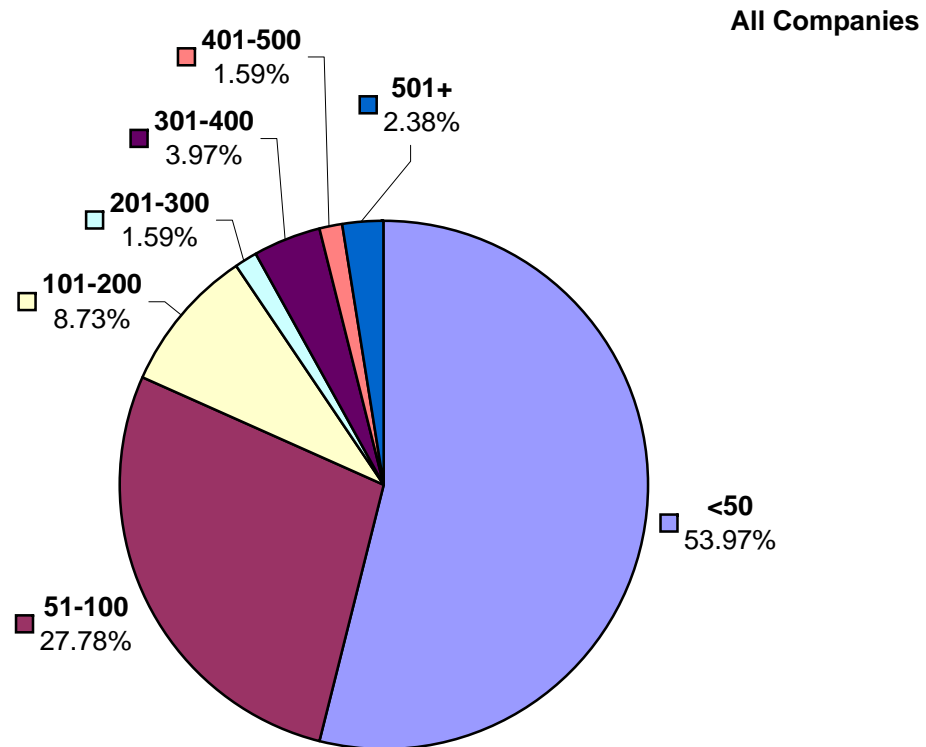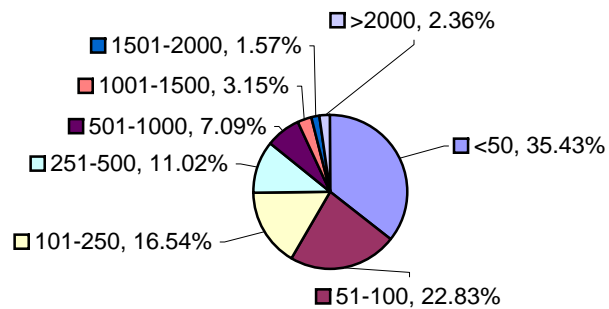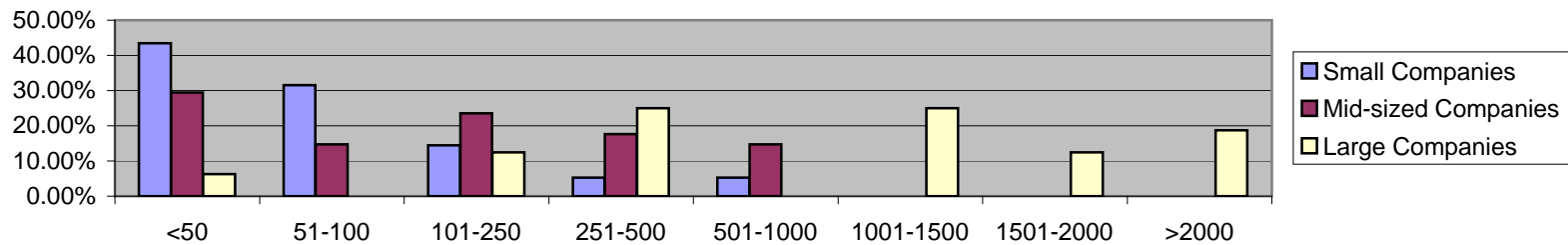21st Century Supply Chain Transformation Survey Data

Approximately how many active suppliers/vendors does your company have in the United States?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
<50	43.42%	29.41%	6.25%		35.43%
51-100	31.58%	14.71%	0.00%		22.83%
101-250	14.47%	23.53%	12.50%		16.54%
251-500	5.26%	17.65%	25.00%		11.02%
501-1000	5.26%	14.71%	0.00%		7.09%
1001-1500	0.00%	0.00%	25.00%		3.15%
1501-2000	0.00%	0.00%	12.50%		1.57%
>2000	0.00%	0.00%	18.75%		2.36%

Approximately how many active suppliers/vendors does your company have in the United States?

All Companies

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Approximately how many active suppliers/vendors does your company have globally outside of the United States?					
answer options		Small Companies	Mid-sized Companies	Large Companies	All Companies
<50		95.16%	87.50%	43.75%	85.59%
51-100		3.23%	9.38%	18.75%	7.21%
101-250		0.00%	0.00%	12.50%	1.80%
251-500		0.00%	3.12%	6.25%	1.80%
501-1000		0.00%	0.00%	6.25%	0.90%
1001-1500		1.61%	0.00%	6.25%	1.80%
1501-2000		0.00%	0.00%	0.00%	0.00%
>2000		0.00%	0.00%	6.25%	0.90%

Approximately how many active suppliers/vendors does your company have globally outside of the United States?

All Companies

☐0.90%

■0.00%

☐1.80%

■0.90%

☐1.80%

☐1.80%

■7.21%

☐85.59%

☐	<50
■	51-100
☐	101-250
☐	251-500
■	501-1000
■	1001-1500
■	1501-2000
☐	>2000
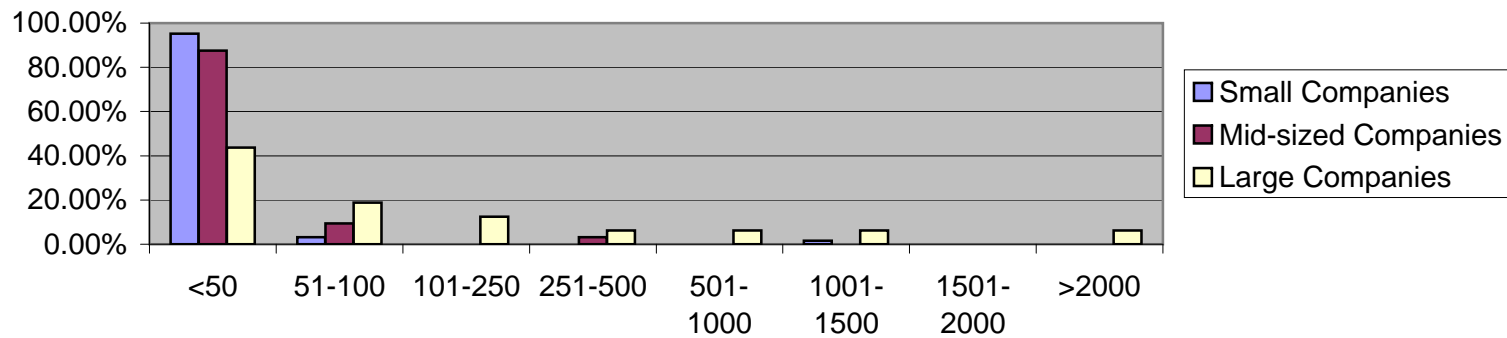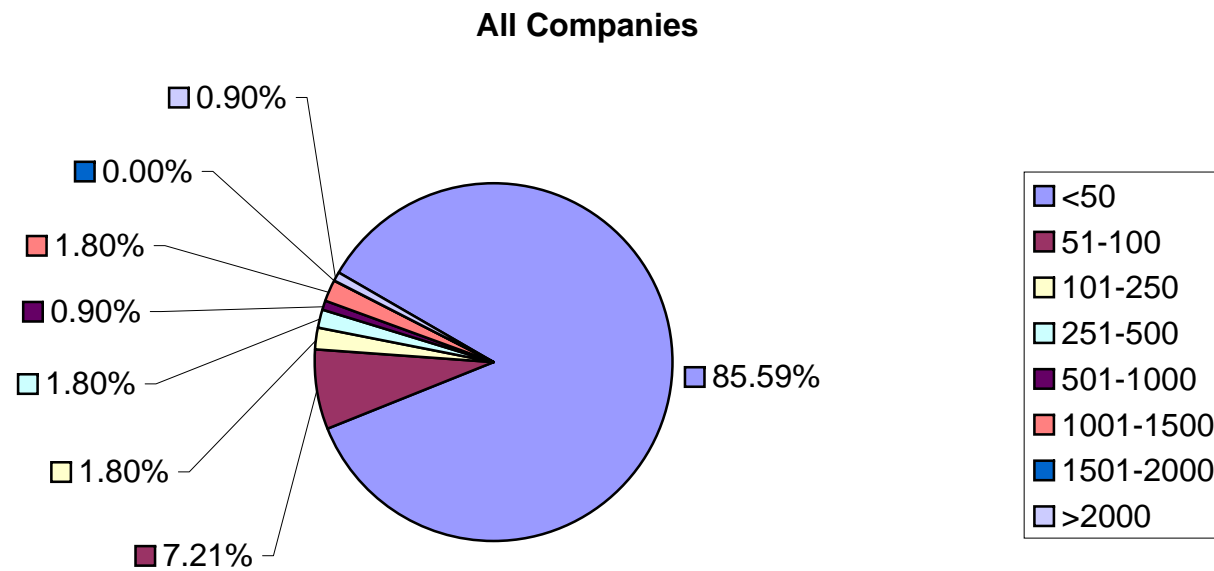
Approximately how much does your company spend in material procurement annually?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
<$5M	87.84%	33.33%	5.88%	62.40%
<$50M	9.46%	57.58%	35.29%	25.60%
<$250M	1.35%	6.06%	0.00%	2.40%
<$1,000M	1.35%	0.00%	5.88%	1.60%
>$1,000M	0.00%	3.03%	52.94%	8.00%

Approximately how much does your company spend in material procurement annually?
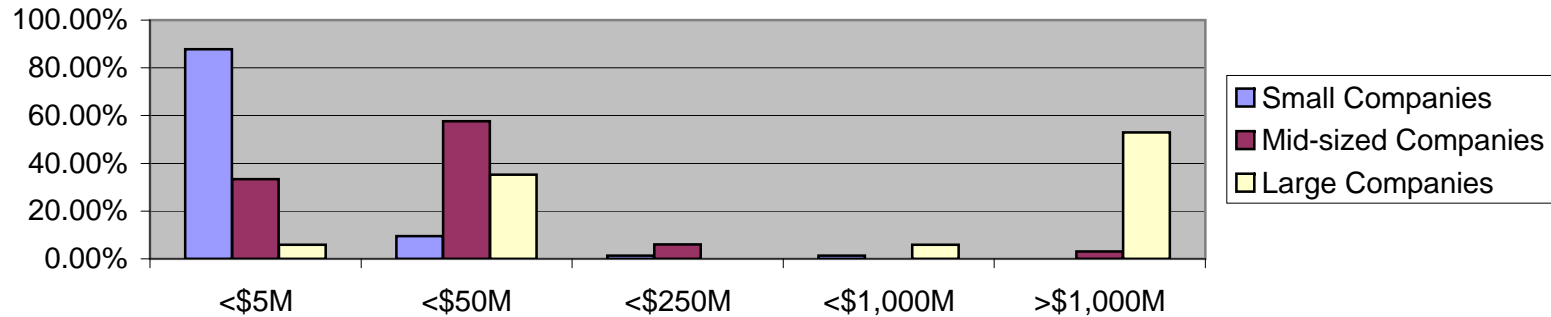
All Companies
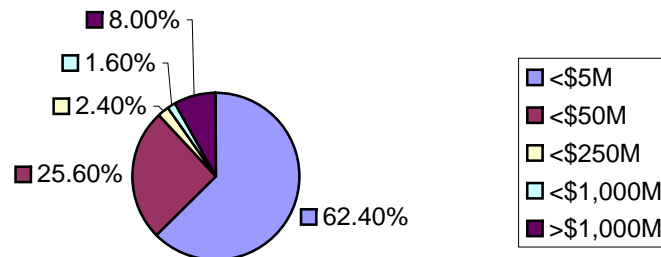
Prepared by Antelope Valley College 4/22/2008

Does your company manage suppliers?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
For key components only.	30.26%	33.33%	0.00%		26.92%
When there are problems only.	23.68%	16.67%	23.53%		21.54%
Always	38.16%	44.44%	70.59%		43.85%
Never	7.89%	5.56%	5.88%		7.69%

Does your company manage suppliers?

All Companies

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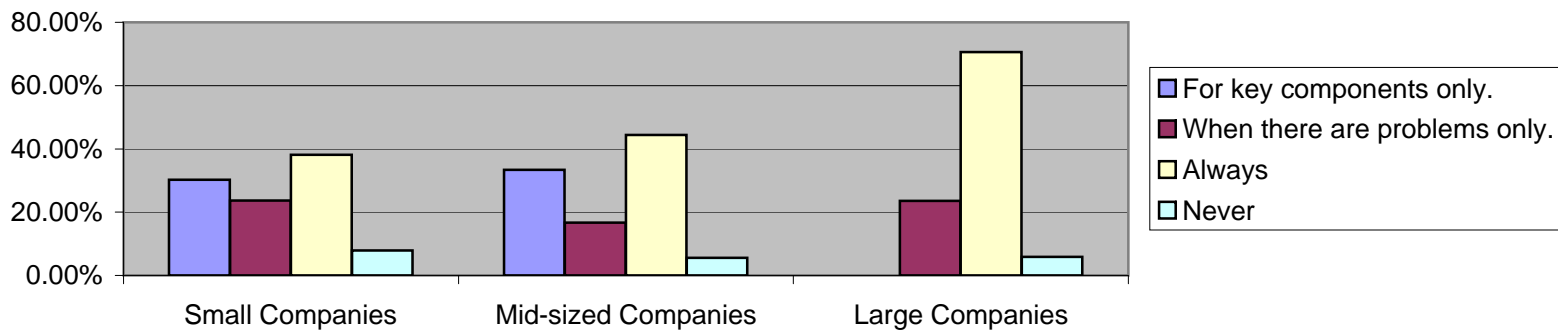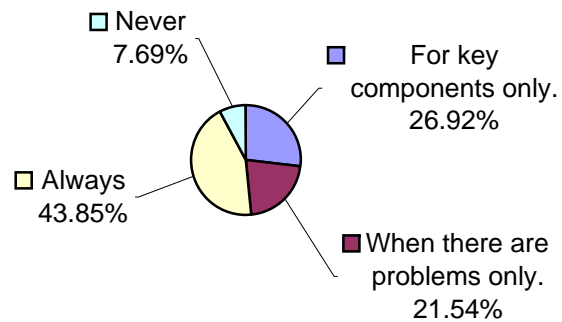
21st Century Supply Chain Transformation Survey Data

If so, how are suppliers managed by your company?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
We measure suppliers on cost, quality, and delivery and work together with key suppliers to help them improve.	26.03%	41.18%	64.71%	35.20%
We measure suppliers on cost, quality, and delivery and share that information routinely with them.	28.77%	32.35%	23.53%	28.80%
Little or no metrics are used to manage suppliers.	36.99%	20.59%	11.76%	28.80%
Other (please specify)	8.22%	5.88%	0.00%	7.20%

All Companies

If so, how are suppliers managed by your company?
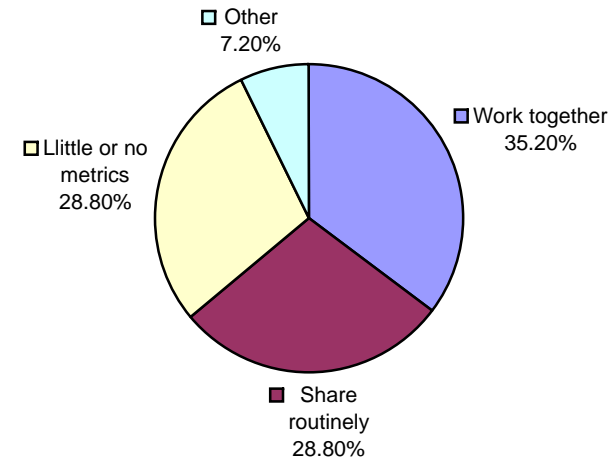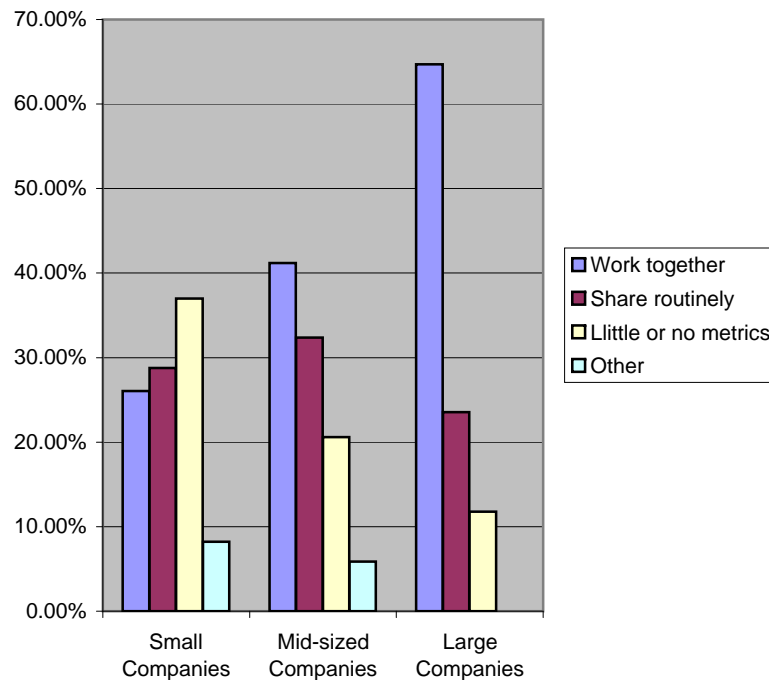
Others
depends on specific circumstances
Quality driven metrics
Prime approvals
N/A
Constant (rolling) evaluation
iso9001-2000

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21st Century Supply Chain Transformation Survey Data

answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
What improvement processes are used by your company? (Check all that apply, minimum of one)					
Six Sigma	13.24%	23.53%	58.82%		22.50%
Lean	52.94%	67.65%	82.35%		60.83%
Value stream mapping	16.18%	38.24%	70.59%		30.00%
Risk and opportunity management	26.47%	47.06%	52.94%		35.83%
Statistical Process Control	51.47%	55.88%	76.47%		55.83%
Other (please specify)	14.71%	5.88%	11.76%		12.50%

What improvement processes are used by your company?
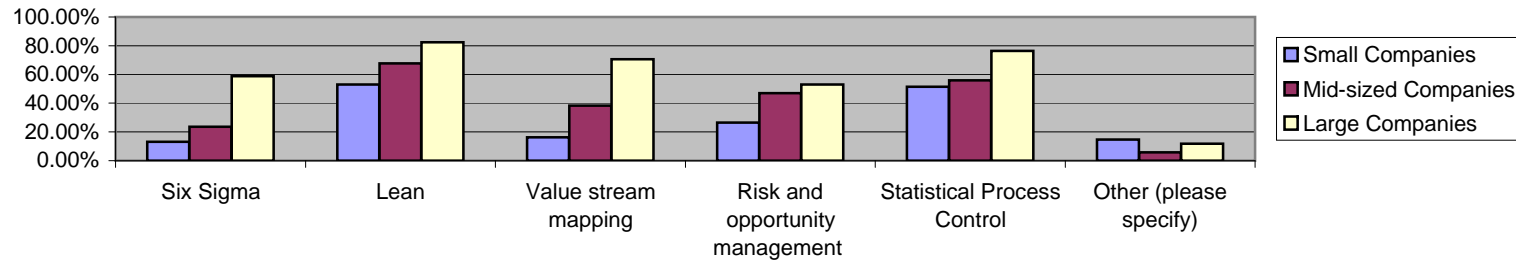
All Companies
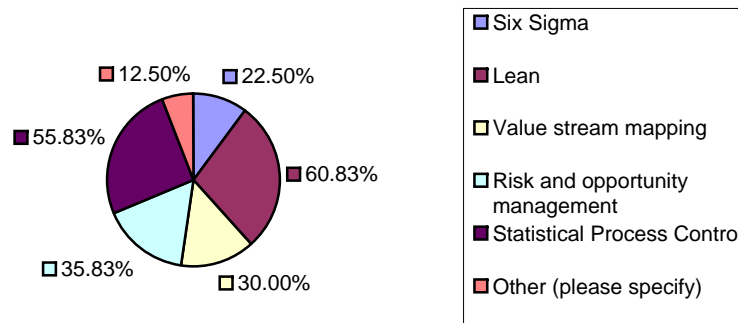
Others
Internal QSM
aspects of others as well
Internal
n/A
none
on time delivery, quality of material-documentation and
6S
Threats

Continuous Improvement
none
We are beginning to implement AS 9100
None
none
Trial & Error
Digital Data Migration Processes

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Does your company use a specific tool to periodically communicate performance and quality metrics to your customers?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
No communication of performance.	27.03%	14.71%	5.88%	21.43%
Communicate performance but no tool in place.	33.78%	26.47%	17.65%	29.37%
Communicate performance using a customer provided tool.	10.81%	38.24%	17.65%	19.05%
Communicate performance using our own tool.	28.38%	20.59%	58.82%	30.16%

Does your company use a specific tool to periodically communicate performance and quality metrics to your customers?

All Companies

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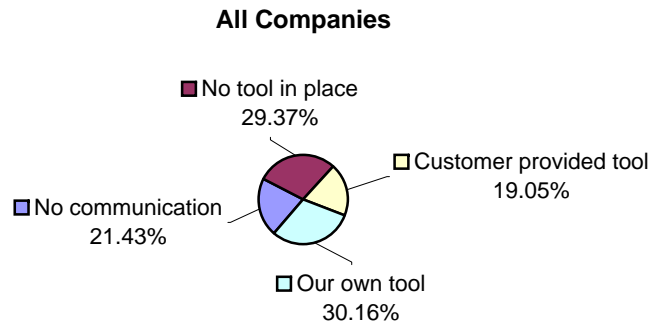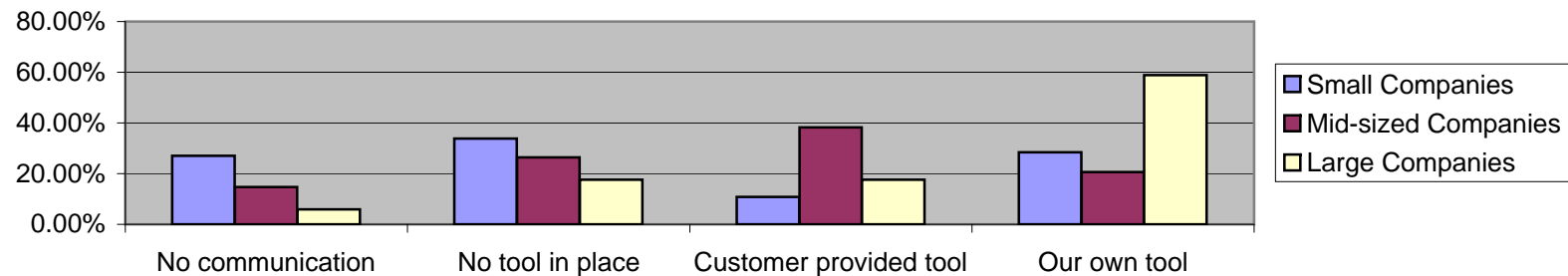
21st Century Supply Chain Transformation Survey Data

Do your suppliers use a specific tool to periodically communicate performance and quality metrics to your company?

answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
No communication of performance.	50.67%	43.75%	29.41%	46.40%
Communicate performance but no tool in place.	37.33%	28.12%	35.29%	34.40%
Communicate performance using a communication method that we provide.	12.00%	28.12%	35.29%	19.20%

Do your suppliers use a specific tool to periodically communicate performance and quality metrics to your company?

All Companies
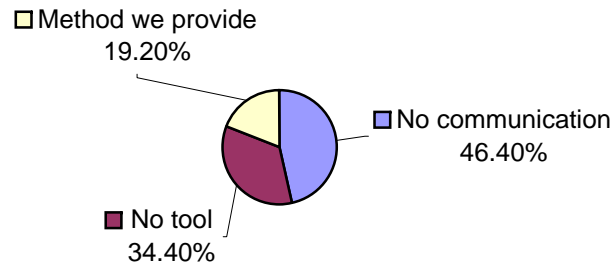
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Please indicate which most accurately describes your company's current use of RFID (Radio Frequency Identification) technology for inventory tracking and logistics?(Check all that apply, minimum of one)				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
RFID is currently used for tracking most parts internally and with customers/suppliers.	2.74%	0.00%	17.65%	4.03%
RFID is currently used only for tracking internal inventory.	1.37%	0.00%	17.65%	3.23%
RFID is currency only used for tracking inventory with customers and/or suppliers, when required by them.	9.59%	6.06%	11.76%	8.87%
RFID is used for tracking government owned equipment and inventory.	1.37%	6.06%	17.65%	4.84%
RFID is not currently used.	84.93%	75.76%	41.18%	76.61%
Want to know more about RFID.	6.85%	12.12%	5.88%	8.06%

Please indicate which most accurately describes your company's current use of RFID (Radio Frequency Identification) technology for inventory tracking and logistics?

21st Century Supply Chain Transformation Survey Data

All Companies

8.06%

4.03%

3.23%

8.87%

4.84%

76.61%

- ■ With customers/suppliers
- ■ Internal inventory
- □ When required
- □ Government owned inventory
- ■ Not currently used
- ■ Want to know more

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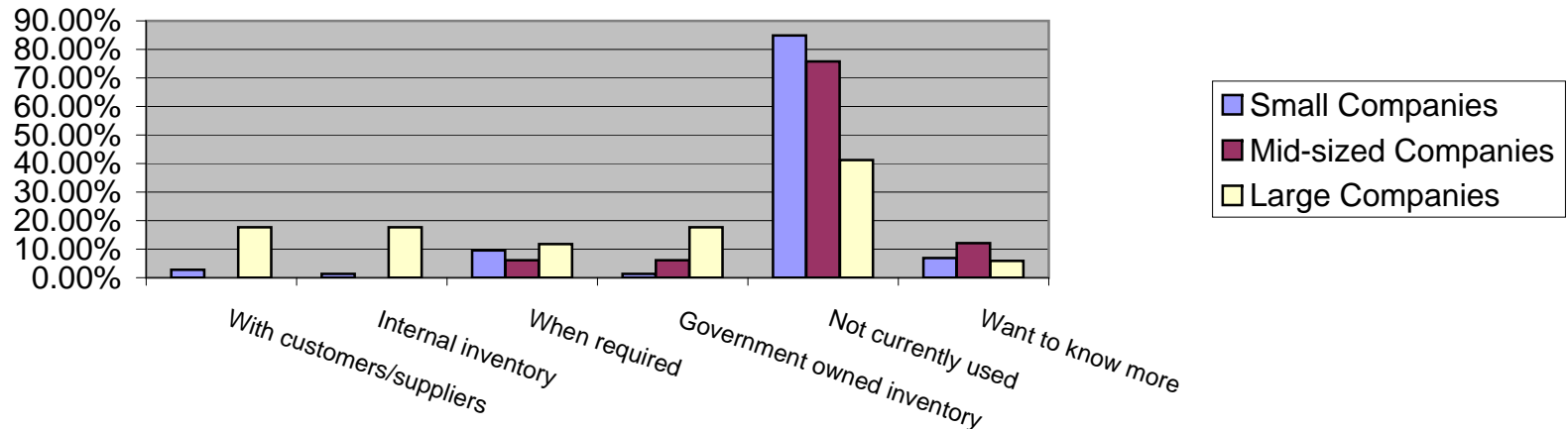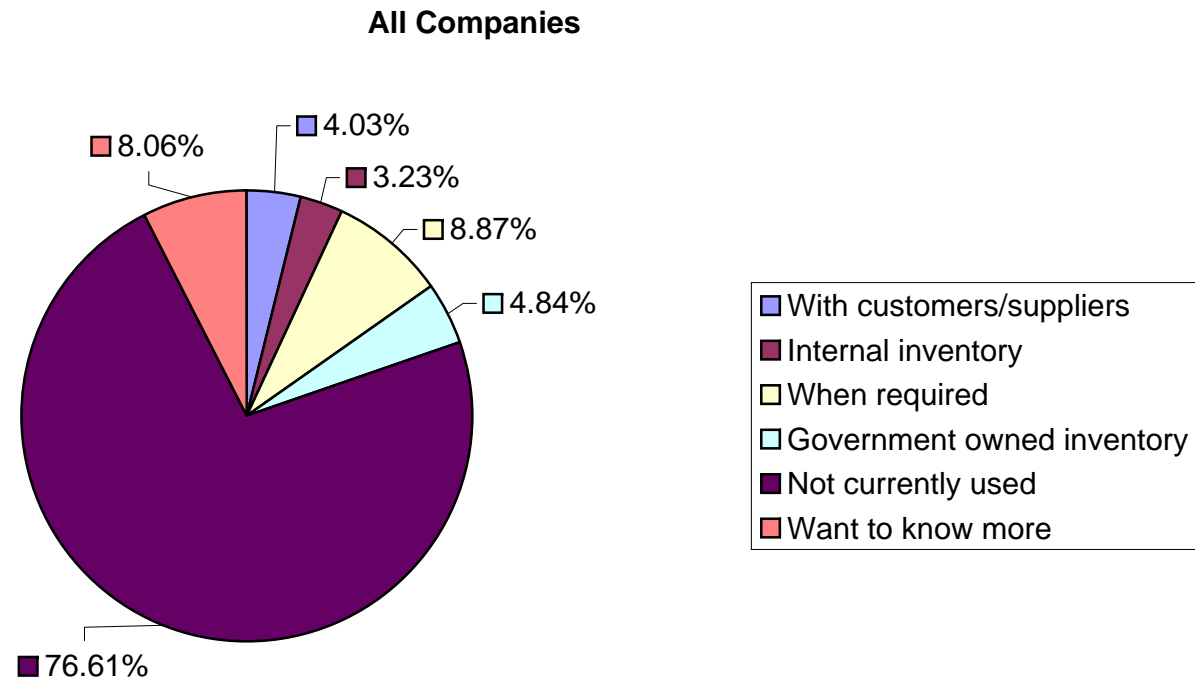
21st Century Supply Chain Transformation Survey Data

How much are lean principles used by your company in manufacturing areas?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
Lean principles used throughout.	25.00%	23.33%	53.33%	28.32%
Lean principles used in about half of plant.	11.76%	20.00%	6.67%	13.27%
Some lean knowledge and implementation.	32.35%	40.00%	33.33%	34.51%
Lean not currently implemented.	20.59%	10.00%	6.67%	15.93%
Lean not fully understood.	10.29%	6.67%	0.00%	7.96%

How much are lean principles used by your company in manufacturing areas?

All Companies

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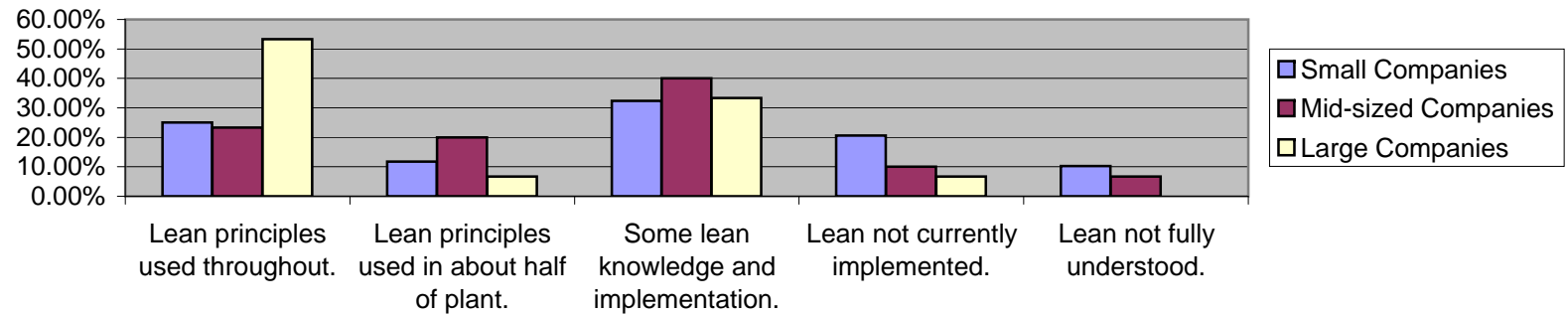
21st Century Supply Chain Transformation Survey Data

What manufacturing process controls are used by your company?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
Mistake Proof (Poke-yoke) and/or SPC used throughout.	3.03%	6.67%	33.33%	8.11%
Mistake Proof (Poke-yoke) and/or SPC used in <50% of areas.	7.58%	20.00%	13.33%	11.71%
In-process inspection is used to check quality.	80.30%	63.33%	33.33%	69.37%
Post-production inspection is only method used to check quality.	9.09%	10.00%	20.00%	10.81%

What manufacturing process controls are used by your company?
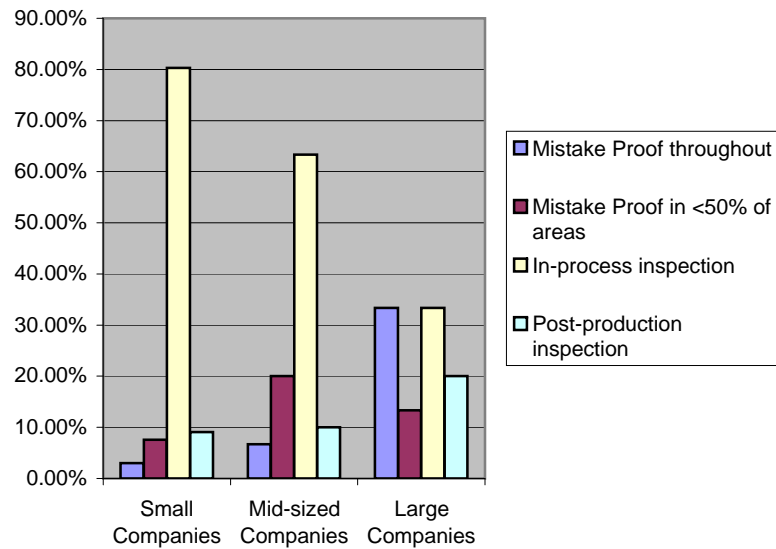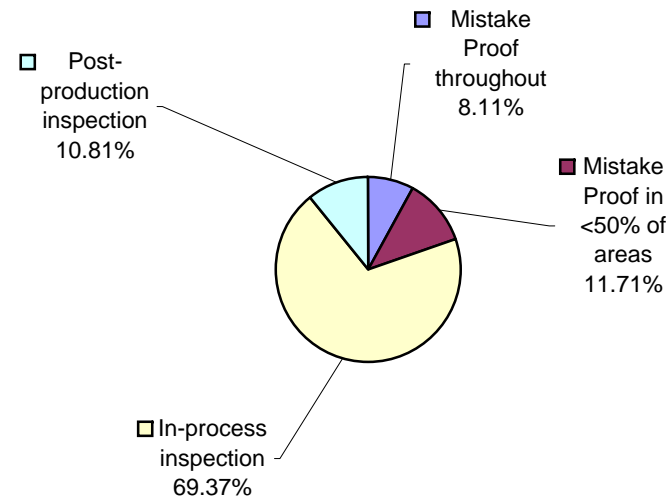
All Companies

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21st Century Supply Chain Transformation Survey Data

Approximately how long has your company used a continuous improvement method such as Six Sigma or lean?				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
> 2 years	34.33%	63.33%	93.33%	50.00%
1-2 years	16.42%	16.67%	6.67%	15.18%
< 1 year	7.46%	10.00%	0.00%	7.14%
No formal continuous improvement process	41.79%	10.00%	0.00%	27.68%

Approximately how long has your company used a continuous improvement method such as Six Sigma or lean?

All Companies
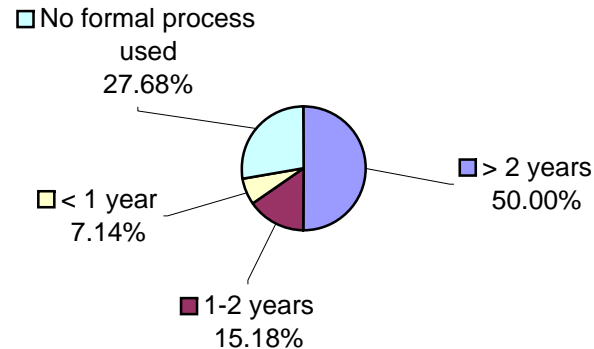
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How are performance metrics used by your company in manufacturing to drive improvements?(Check all that apply, minimum of one)				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
Hourly and daily visual controls and metrics are used by the production line teams to manage production, quality, and inventory.	24.24%	32.14%	60.00%	31.19%
Weekly performance metrics are shared with the production line teams by management.	13.64%	32.14%	26.67%	20.18%
Monthly performance metrics are shared with the production line teams by management.	30.30%	46.43%	40.00%	35.78%
No performance metrics are shared.	40.91%	7.14%	0.00%	26.61%

How are performance metrics used by your company in manufacturing to drive improvements?

All Companies

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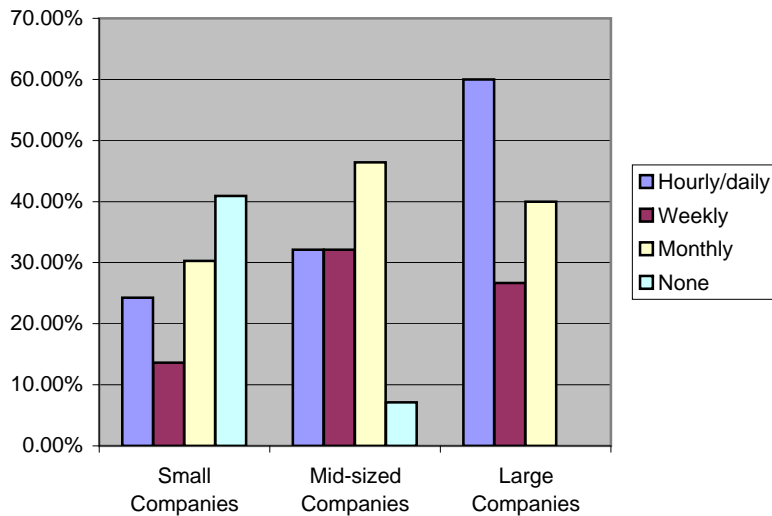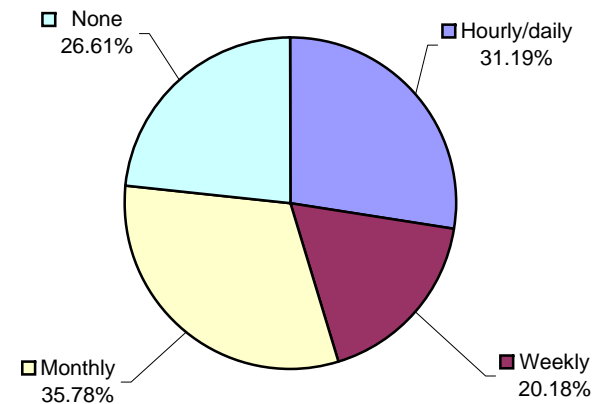
21st Century Supply Chain Transformation Survey Data

Please put in rank order according to your company's priority of supply chain metrics. (Please be sure to check an answer in each column.)

Small Companies

answer options	Highest priority 1	2	3	4	Lowest priority 5
On time delivery to customers	50	11	1	0	0
On time deliver by suppliers	2	23	27	8	1
Customer return rate/Cost of poor quality	13	18	12	14	4
Inventory turn	0	3	8	12	42
Order fulfillment lead time	1	10	15	25	13

Mid-sized Companies

answer options	Highest priority 1	2	3	4	Lowest priority 5
On time delivery to customers	25	4	0	0	1
On time deliver by suppliers	2	9	7	8	1
Customer return rate/Cost of poor quality	4	11	11	1	2
Inventory turn	0	0	6	8	13
Order fulfillment lead time	0	6	6	10	8

Large Companies

answer options	Highest priority 1	2	3	4	Lowest priority 5
On time delivery to customers	12	2	0	0	0
On time deliver by suppliers	1	5	5	2	1
Customer return rate/Cost of poor quality	2	5	5	2	0
Inventory turn	0	0	2	4	7
Order fulfillment lead time	0	2	2	5	5

All Companies

answer options	Highest priority 1	2	3	4	Lowest priority 5
On time delivery to customers	87	17	1	0	1
On time deliver by suppliers	5	37	39	18	3
Customer return rate/Cost of poor quality	19	34	28	17	6
Inventory turn	0	3	16	24	62
Order fulfillment lead time	1	18	23	40	26

Please put in rank order according to your company's priority of supply chain metrics.
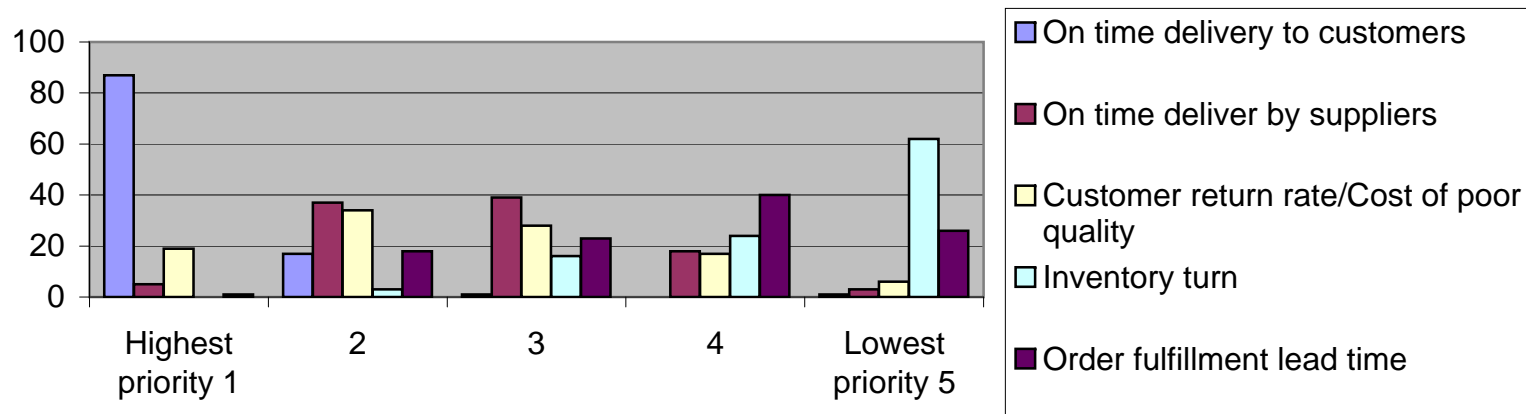
21st Century Supply Chain Transformation Survey Data

How are procedures used by your company in manufacturing to assure good quality?(Check all that apply, minimum of one)				
answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
The"standard work"methodology has been implemented (e.g. Nissan/Toyota).	9.09%	12.90%	33.33%	13.39%
Written procedures are actively used.	71.21%	74.19%	80.00%	73.21%
Written procedures are in place and referred to only for training.	31.82%	16.13%	0.00%	23.21%
No written manufacturing procedures are in place.	6.06%	9.68%	6.67%	7.14%

How are procedures used by your company in manufacturing to assure good quality?

Legend:
- "Standard work"methodology
- Written procedures are actively used.
- Written procedures referred to only for training.
- No written procedures.

All Companies

Legend:
- "Standard work"methodology
- Written procedures are actively used.
- Written procedures referred to only for training.
- No written procedures.

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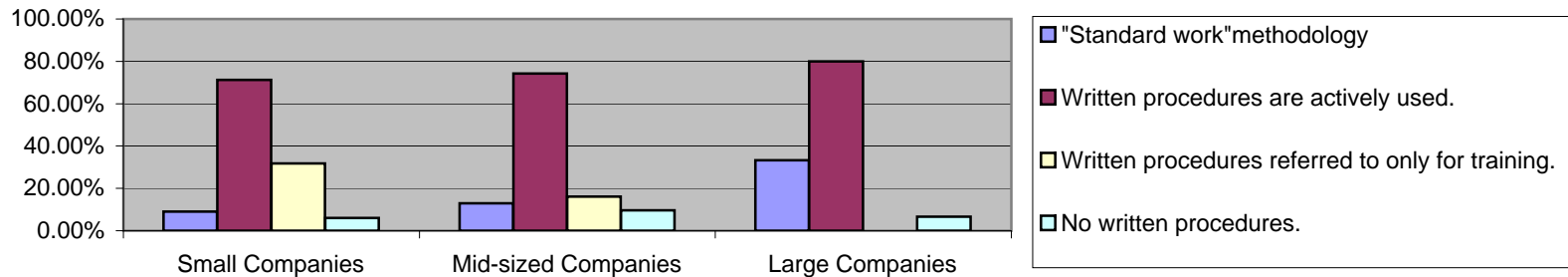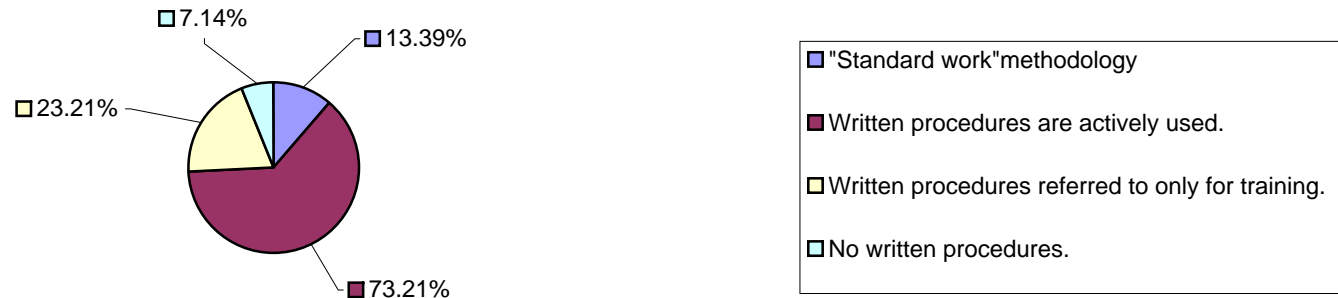
21st Century Supply Chain Transformation Survey Data

How does your company manage supplier quality issues?				
answer options	**Small Companies**	**Mid-sized Companies**	**Large Companies**	**All Companies**
Supplier quality issues are documented and analyzed. The company and suppliers work closely together to resolve problems and improve quality.	50.00%	54.84%	92.86%	56.64%
Supplier quality issues are documented. Suppliers are sent information and expected to resolve problems independently.	41.18%	32.26%	7.14%	34.51%
Suppliers do not adequately respond to quality problems.	8.82%	12.90%	0.00%	8.85%

How does your company manage supplier quality issues?
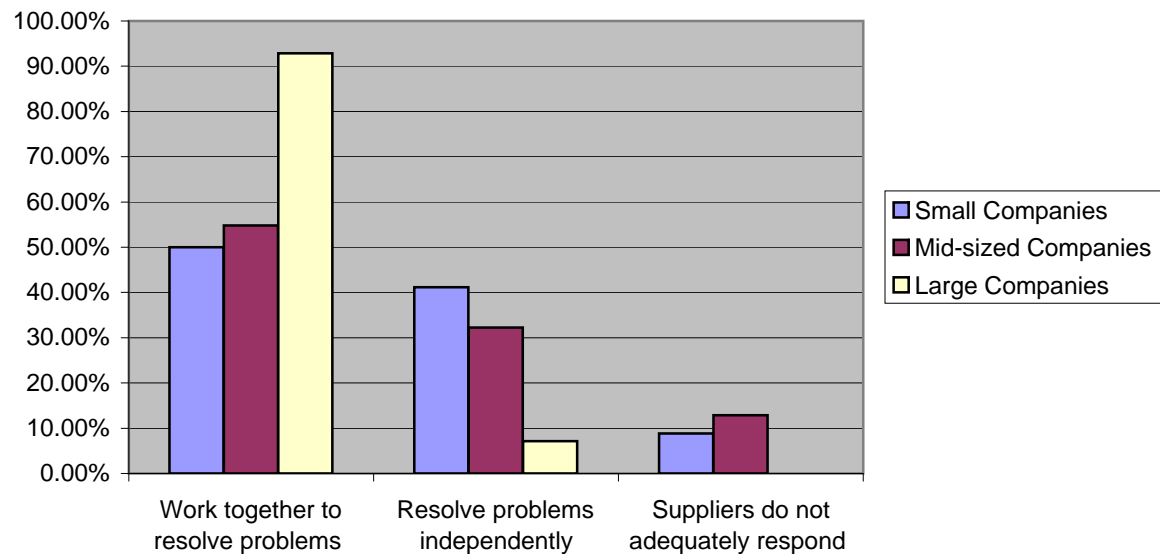
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21st Century Supply Chain Transformation Survey Data

All Companies

Suppliers do not adequately respond 8.85%

Resolve problems independently 34.51%

Work together to resolve problems 56.64%
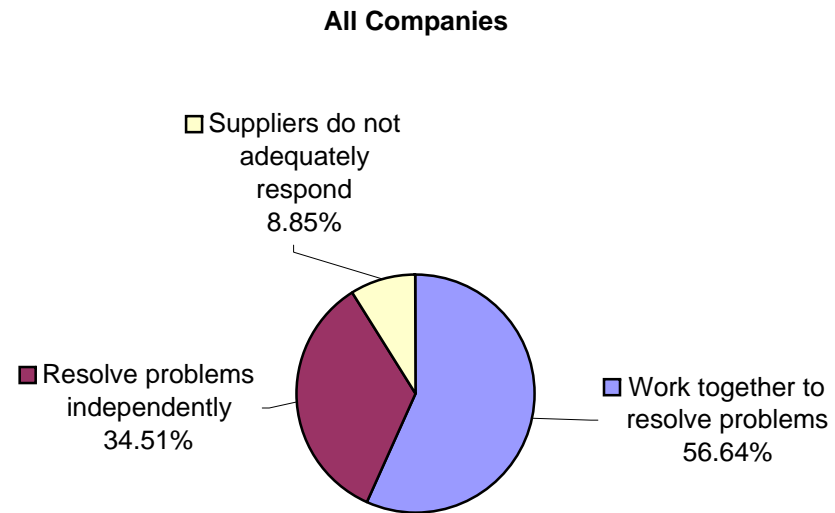
21st Century Supply Chain Transformation Survey Data

Does manufacturing lay out its product lines to align best with the TAKT time (the rate at which your customers buy your products)?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Yes	39.71%	50.00%	73.33%		46.90%
No	42.65%	30.00%	26.67%		37.17%
Don't know	17.65%	20.00%	0.00%		15.93%

Does manufacturing lay out its product lines to align best with the TAKT time (the rate at which your customers buy your products)?

All Companies

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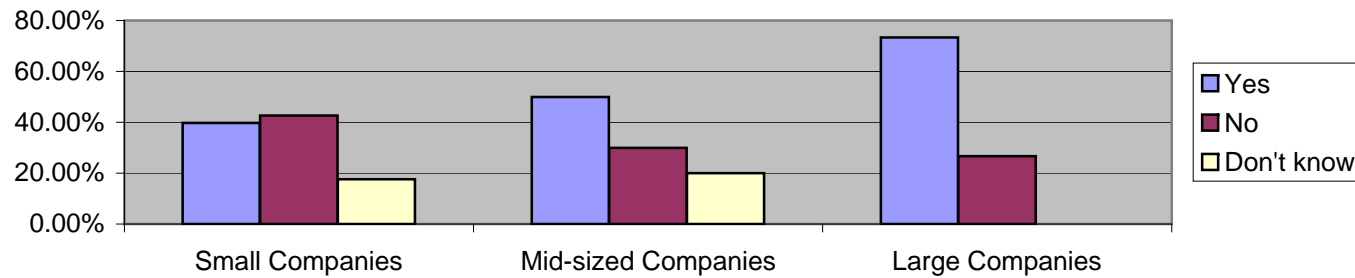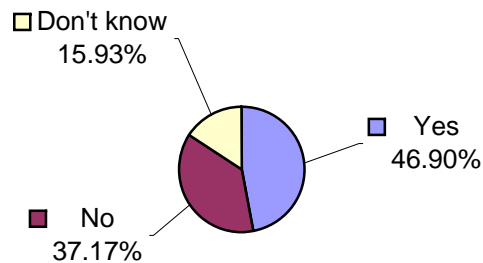
21st Century Supply Chain Transformation Survey Data

Which of the following Quality Management System Certification does your company... (Please be sure to check an answer in each row.)			
Small Companies			
answer options	have?	need?	Not applicable
AS9100	29	21	7
ISO 14001	1	12	23
ISO 9001:2001	35	10	9
TS 16949	0	4	33
Mil-Q-9858	16	5	24
Mil-I-45208	22	5	20
MIL-PRF 38534	3	3	29
Mid-sized Companies			
answer options	have?	need?	Not applicable
AS9100	19	2	3
ISO 14001	2	2	13
ISO 9001:2001	22	2	1
TS 16949	1	1	14
Mil-Q-9858	10	0	9
Mil-I-45208	13	0	6
MIL-PRF 38534	3	0	14
Large Companies			
answer options	have?	need?	Not applicable
AS9100	11	0	2
ISO 14001	8	0	3
ISO 9001:2001	13	0	1
TS 16949	3	0	8
Mil-Q-9858	4	0	7
Mil-I-45208	4	0	7
MIL-PRF 38534	3	0	7
All Companies			
answer options	have?	need?	Not applicable
AS9100	59	23	12
ISO 14001	11	14	39
ISO 9001:2001	70	12	11
TS 16949	4	5	55
Mil-Q-9858	30	5	40
Mil-I-45208	39	5	33
MIL-PRF 38534	9	3	50

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21st Century Supply Chain Transformation Survey Data

answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
How often does your company do quality self audits?(Check all that apply, minimum of one)					
Annually	46.03%	27.59%	46.67%		41.12%
Quarterly	33.33%	34.48%	60.00%		37.38%
Monthly	22.22%	34.48%	26.67%		26.17%
Never	9.52%	6.90%	0.00%		7.48%

How often does your company do quality self audits?
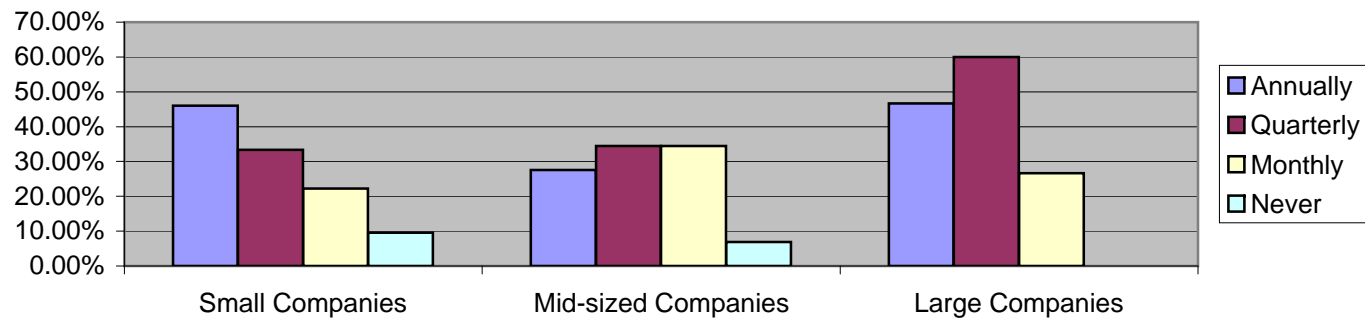
All Companies
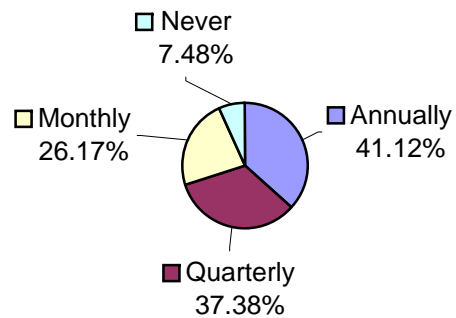
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What is your company's Nonconformance Management process?(Check all that apply, minimum of one)					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Documented Nonconformance Process with Corrective & Preventative Action process.	80.95%	85.71%	93.33%		83.96%
Root cause analysis.	58.73%	46.43%	66.67%		56.60%
Risk Management System.	15.87%	14.29%	33.33%		17.92%
Other (please specify)	4.76%	3.57%	6.67%		4.72%

What is your company's Nonconformance Management process?
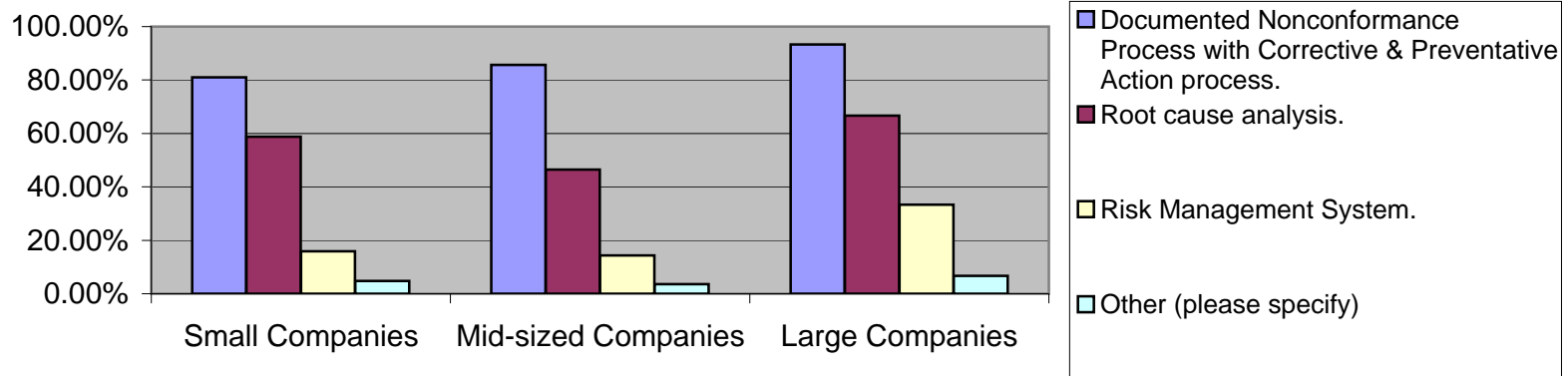
21st Century Supply Chain Transformation Survey Data

Does your company have NADCAP Certification in these areas?(Please be sure to check an answer in each row.)

Small Companies

answer options	Yes	No (But needed)	No (Not Applicable)
NDT	6	6	47
Material Testing	4	8	48
Heat Treat	5	4	50
Welding	3	3	51
Brazing	3	2	52
Chemical Processing	4	4	50
Platings	4	4	50
Coatings	3	4	51
Soldering	5	2	51

Mid-sized Companies

answer options	Yes	No(But needed)	No(Not Applicable)
NDT	6	2	19
Material Testing	3	3	19
Heat Treat	4	2	19
Welding	6	2	17
Brazing	1	3	21
Chemical Processing	2	2	21
Platings	1	2	21
Coatings	1	2	21
Soldering	1	2	21

Large Companies

answer options	Yes	No(But needed)	No(Not Applicable)
NDT	7	0	5
Material Testing	6	1	6
Heat Treat	7	0	6
Welding	8	0	5
Brazing	6	0	6
Chemical Processing	6	0	6
Platings	4	0	8
Coatings	6	0	6
Soldering	6	0	6

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21st Century Supply Chain Transformation Survey Data

All Companies			
answer options	Yes	No(But needed)	No(Not Applicable)
NDT	19	8	71
Material Testing	13	12	73
Heat Treat	16	6	75
Welding	17	5	73
Brazing	10	5	79
Chemical Processing	12	6	77
Platings	9	6	79
Coatings	10	6	78
Soldering	12	4	78

Does your company have NADCAP Certification in these areas?
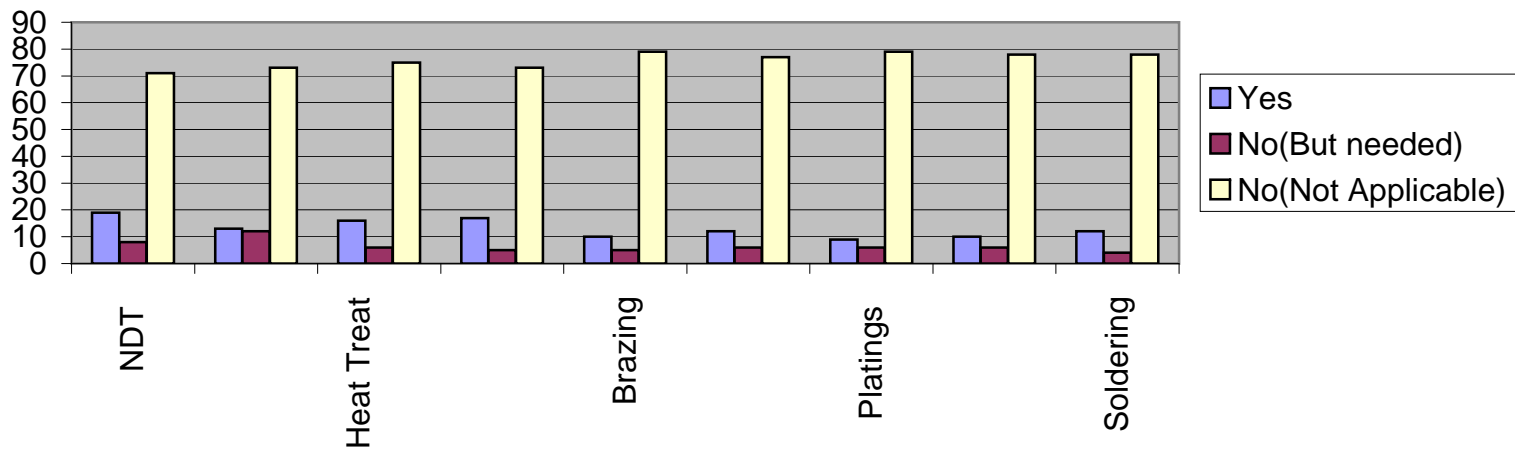
Prepared by Antelope Valley College 4/22/2008

What capabilities exist in your company? (Check all that apply, minimum of one)					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
New product design	51.61%	72.41%	86.67%		62.26%
Design for manufacturability analysis	51.61%	79.31%	80.00%		63.21%
Engineering analysis (stress, thermal, etc.)	41.94%	65.52%	73.33%		52.83%
Testing	51.61%	65.52%	80.00%		59.43%
Prototyping - physical	74.19%	82.76%	80.00%		77.36%
Prototyping - virtual/digital simulation	30.65%	41.38%	66.67%		38.68%
None	8.06%	0.00%	0.00%		4.72%

What capabilities exist in your company?
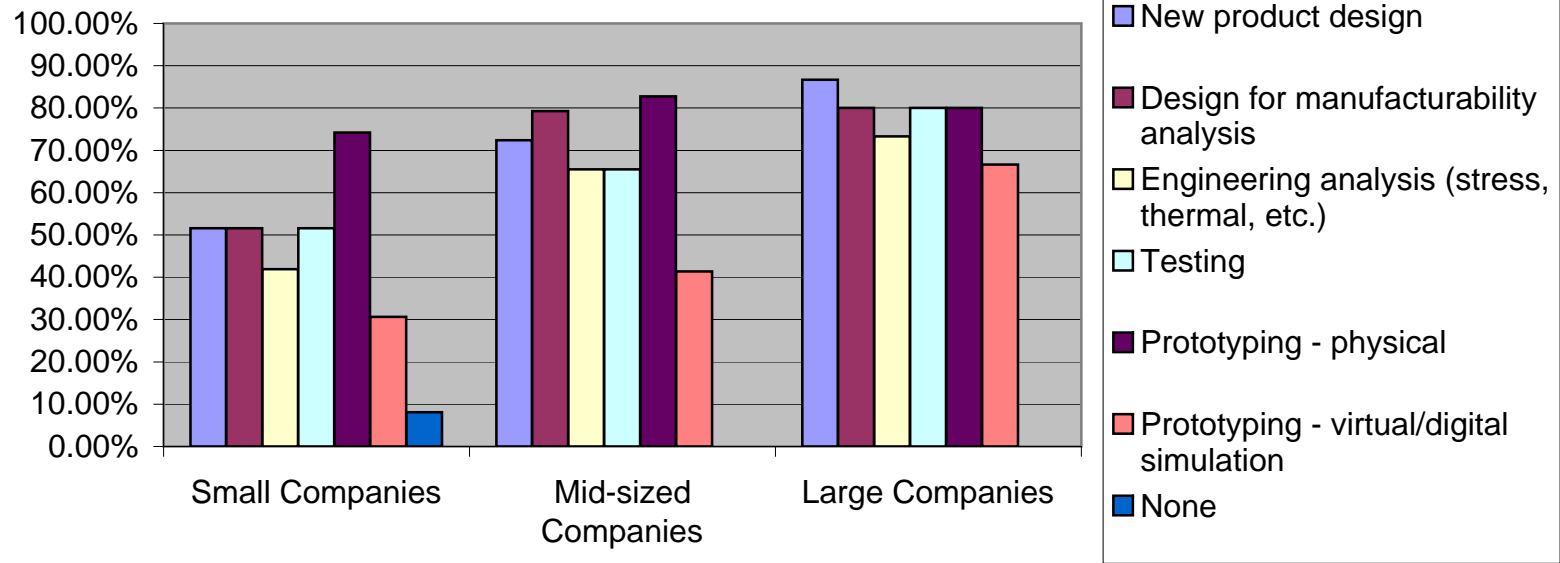
All Companies

Legend:
- New product design
- Design for manufacturability analysis
- Engineering analysis (stress, thermal, etc.)
- Testing
- Prototyping - physical
- Prototyping - virtual/digital simulation
- None

Values shown: 4.72%, 38.68%, 62.26%, 77.36%, 63.21%, 59.43%, 52.83%

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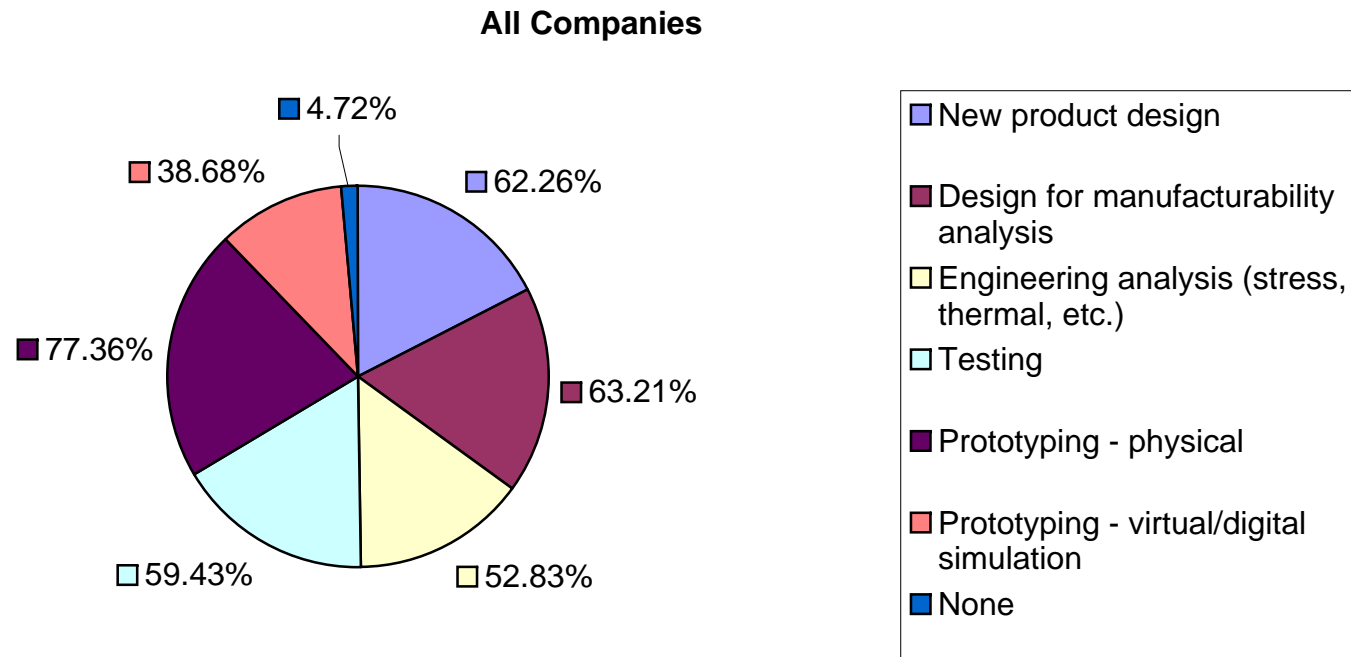
21st Century Supply Chain Transformation Survey Data

How often does your company collaborate with suppliers in each of these functions?(Please be sure to check an answer in each row.)					

Small Companies

answer options	None	<25%	25-50%	50-75%	75-100%
New product design	25	18	7	3	7
Design for manufacturability analysis	30	16	7	3	3
Engineering analysis (stress, thermal, etc.)	33	15	7	2	1
Testing	22	24	4	5	5
Prototyping - physical	25	18	6	3	5
Prototyping - virtual/digital simulation	38	13	2	1	2

Mid-sized Companies

answer options	None	<25%	25-50%	50-75%	75-100%
New product design	4	12	7	3	2
Design for manufacturability analysis	5	12	8	2	0
Engineering analysis (stress, thermal, etc.)	8	13	4	1	1
Testing	6	13	3	1	2
Prototyping - physical	4	10	8	4	1
Prototyping - virtual/digital simulation	11	11	2	1	0

Large Companies

answer options	None	<25%	25-50%	50-75%	75-100%
New product design	1	5	3	0	5
Design for manufacturability analysis	2	5	3	1	3
Engineering analysis (stress, thermal, etc.)	2	3	4	2	3
Testing	2	5	0	4	3
Prototyping - physical	2	4	3	3	2
Prototyping - virtual/digital simulation	2	5	2	2	2

All Companies

answer options	None	<25%	25-50%	50-75%	75-100%
New product design	30	35	17	6	14
Design for manufacturability analysis	37	33	18	6	6
Engineering analysis (stress, thermal, etc.)	43	31	15	5	5
Testing	30	42	7	10	10
Prototyping - physical	31	32	17	10	8
Prototyping - virtual/digital simulation	51	29	6	4	4

How often does your company collaborate with suppliers in each of these functions?

Legend:
- New product design
- Design for manufacturability analysis
- Engineering analysis (stress, thermal, etc.)
- Testing
- Prototyping - physical
- Prototyping - virtual/digital simulation

21st Century Supply Chain Transformation Survey Data

How often does your company collaborate with customers in each of these functions?(Please be sure to check an answer in each row.)
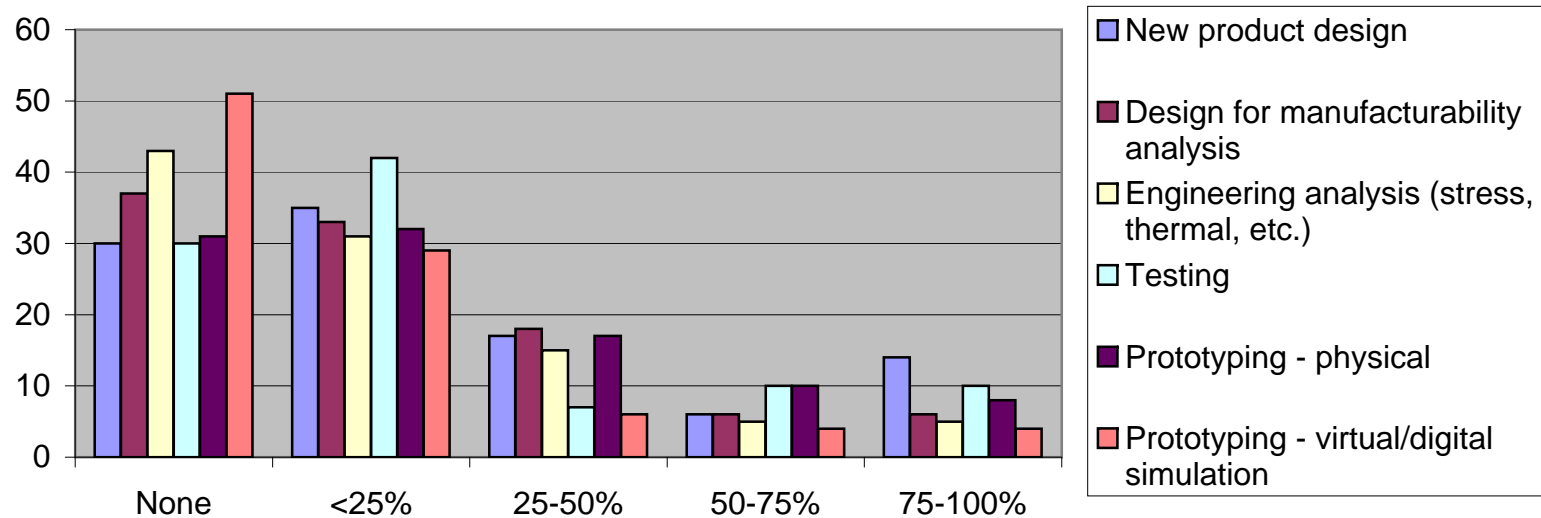
Small Companies

answer options	None	<25%	25-50%	50-75%	75-100%
New product design	14	23	8	3	14
Design for manufacturability analysis	18	26	7	3	8
Engineering analysis (stress, thermal, etc.)	26	19	7	1	7
Testing	19	24	5	5	9
Prototyping - physical	14	24	9	4	10
Prototyping - virtual/digital simulation	35	14	3	3	4

Mid-sized Companies

answer options	None	<25%	25-50%	50-75%	75-100%
New product design	2	9	6	5	6
Design for manufacturability analysis	5	9	7	3	3
Engineering analysis (stress, thermal, etc.)	7	9	6	2	3
Testing	4	10	4	7	2
Prototyping - physical	3	11	5	5	2
Prototyping - virtual/digital simulation	10	4	6	3	1

Large Companies

answer options	None	<25%	25-50%	50-75%	75-100%
New product design	0	2	2	2	8
Design for manufacturability analysis	2	4	3	3	2
Engineering analysis (stress, thermal, etc.)	1	2	3	5	3
Testing	1	3	3	3	4
Prototyping - physical	2	2	2	4	4
Prototyping - virtual/digital simulation	4	2	2	3	3

All Companies

answer options	None	<25%	25-50%	50-75%	75-100%
New product design	16	34	16	10	28
Design for manufacturability analysis	25	39	17	9	13
Engineering analysis (stress, thermal, etc.)	34	30	16	8	13
Testing	24	37	12	15	15
Prototyping - physical	19	37	16	13	16
Prototyping - virtual/digital simulation	49	20	11	9	8

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How often does your company collaborate with customers in each of these functions?

Legend:
- New product design
- Design for manufacturability analysis
- Engineering analysis (stress, thermal, etc.)
- Testing
- Prototyping - physical
- Prototyping - virtual/digital simulation

X-axis categories: None, <25%, 25-50%, 50-75%, 75-100%
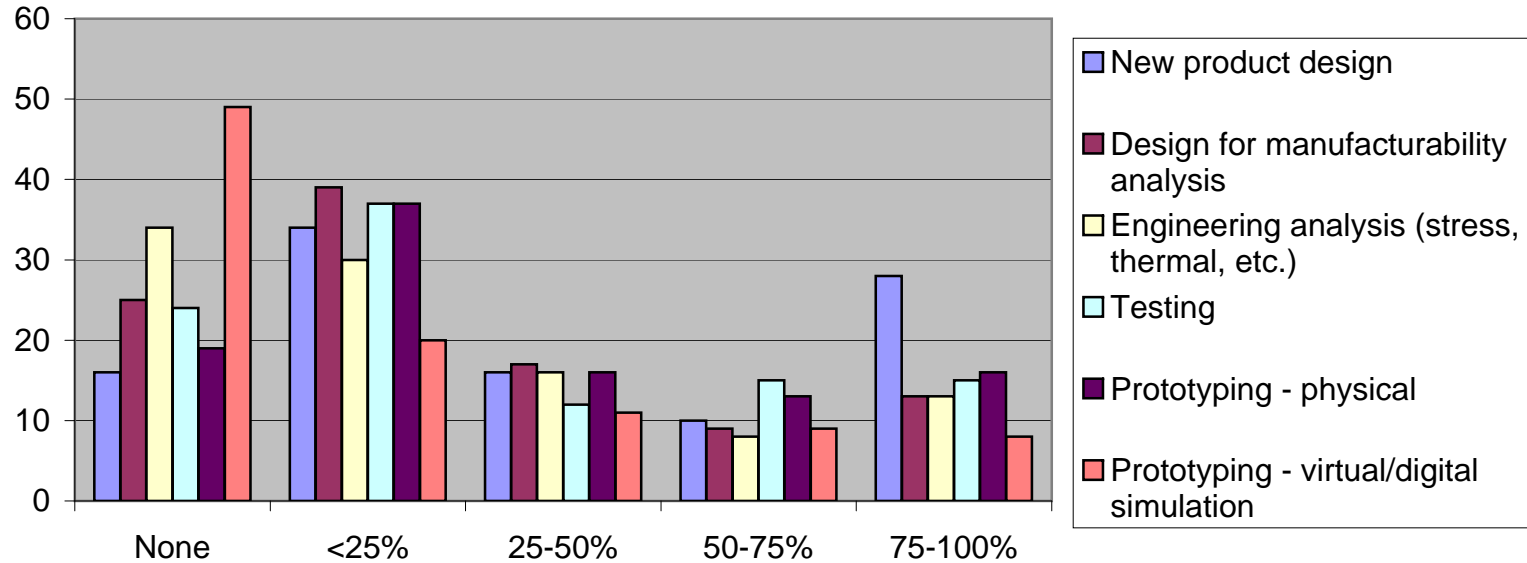
| Does your company have a workforce development plan that has defined skill requirements, assessment, gaps analysis, and training for all positions?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Yes, all positions.	30.51%	37.04%	61.54%		36.36%
Yes, key positions only.	28.81%	51.85%	30.77%		35.35%
No	40.68%	11.11%	7.69%		28.28%

Does your company have a workforce development plan that has defined skill requirements, assessment, gaps analysis, and training for all positions?

All Companies
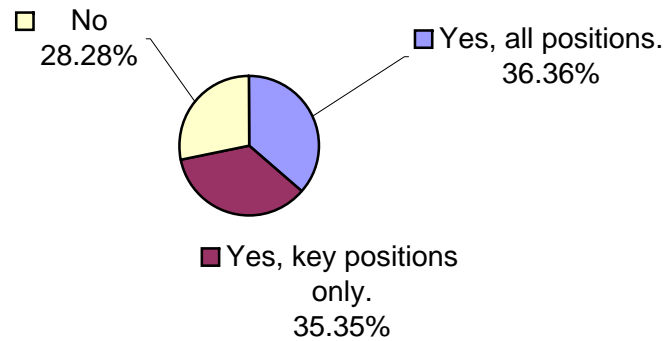
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21st Century Supply Chain Transformation Survey Data

answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
Are there training and procedures to control high risk activities at your company (e.g. lock out/tag out, confined space entry, excavation/ trenching, work at heights, work requiring hazardous energy control, high voltage electrical work, work involving scaffolding or steel erection)?				
Yes, with careful auditing/oversight.	27.12%	44.44%	69.23%	37.37%
Yes, but limited auditing/oversight.	50.85%	37.04%	23.08%	43.43%
No	22.03%	18.52%	7.69%	19.19%

Are there training and procedures to control high risk activities at your company?
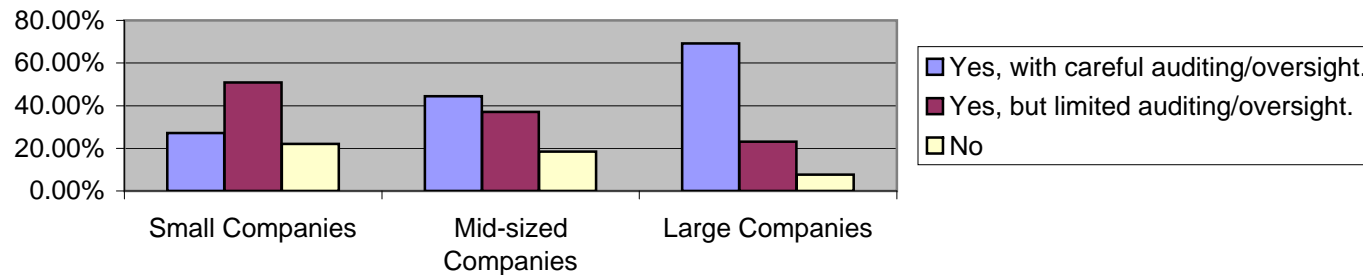
- Yes, with careful auditing/oversight.
- Yes, but limited auditing/oversight.
- No

All Companies

19.19%
37.37%
43.43%

- Yes, with careful auditing/oversight.
- Yes, but limited auditing/oversight.
- No

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Where do you anticipate a shortage of employees to occur within your company in the next five years? (Check all that apply, minimum of one)					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Skilled production	71.19%	57.69%	53.85%		65.31%
Unskilled production	11.86%	11.54%	0.00%		10.20%
Scientists and Engineers	40.68%	61.54%	76.92%		51.02%
Sales and Marketing	16.95%	23.08%	0.00%		16.33%
Management	25.42%	30.77%	23.08%		26.53%
Customer Service	20.34%	15.38%	7.69%		17.35%
None	16.95%	11.54%	7.69%		14.29%
Other (please specify)	3.39%	7.69%	0.00%		4.08%

Where do you anticipate a shortage of employees to occur within your company in the next five years?
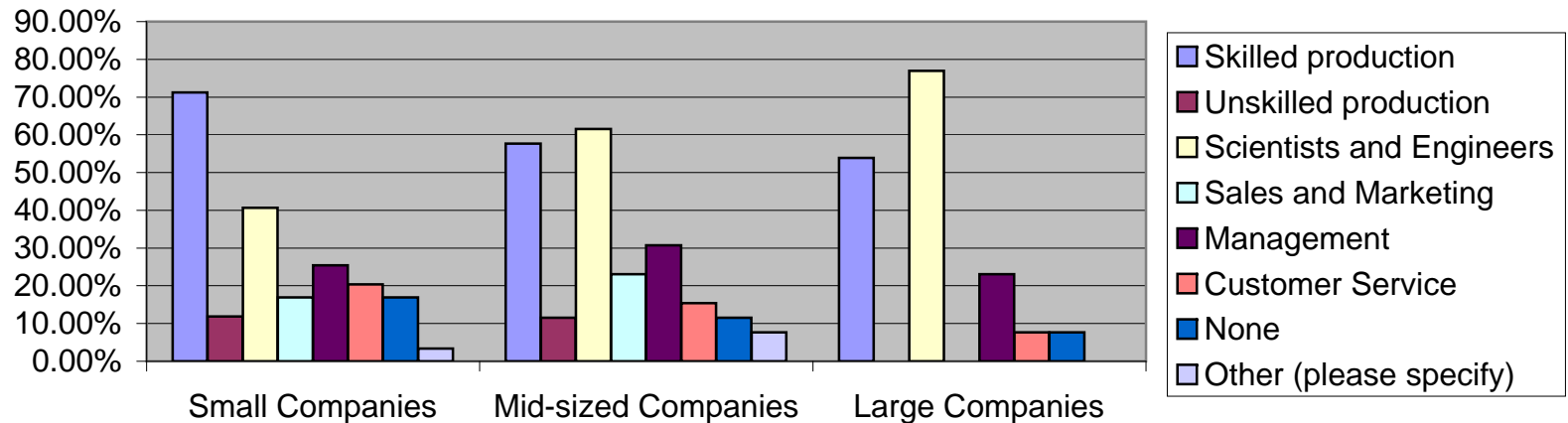
Others
High Tech Machinist-3,4,5axis
Skilled technology Instructors
Field installation and start up personnel
tool designers, inspectors, program
mangement

21st Century Supply Chain Transformation Survey Data
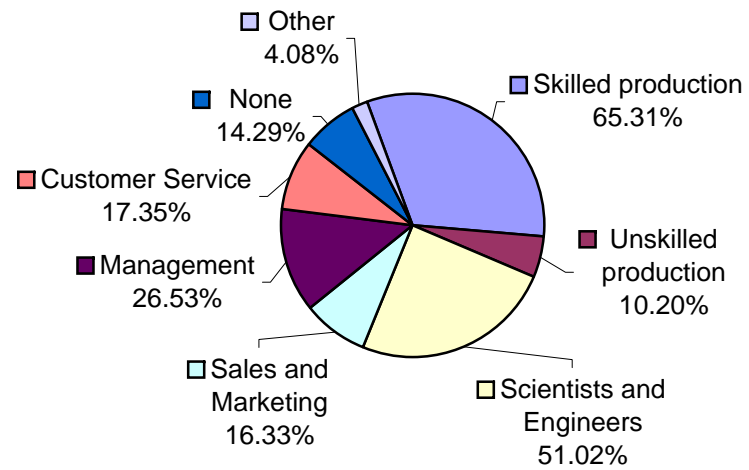
- Other 4.08%
- None 14.29%
- Customer Service 17.35%
- Management 26.53%
- Sales and Marketing 16.33%
- Skilled production 65.31%
- Unskilled production 10.20%
- Scientists and Engineers 51.02%

21st Century Supply Chain Transformation Survey Data

answer options	Small Companies	Mid-sized Companies	Large Companies	All Companies
At what level does the shortage of skilled employees affect your company's ability to meet customer needs?				
No Impact 1	8.62%	3.85%	7.69%	7.22%
Very Little Negative Impact 2	20.69%	11.54%	7.69%	16.49%
Some Negative Impact 3	27.59%	46.15%	38.46%	34.02%
Negative Impact 4	24.14%	23.08%	23.08%	23.71%
Major Negative Impact 5	18.97%	15.38%	23.08%	18.56%

At what level does the shortage of skilled employees affect your company's ability to meet customer needs?

- No Impact 1
- Very Little Negative Impact 2
- Some Negative Impact 3
- Negative Impact 4
- Major Negative Impact 5

No Impact 7.22%
Very Little Negative Impact 16.49%
Some Negative Impact 34.02%
Negative Impact 23.71%
Major Negative Impact 18.56%

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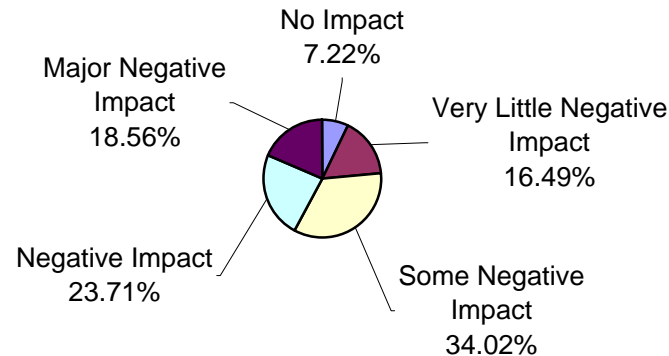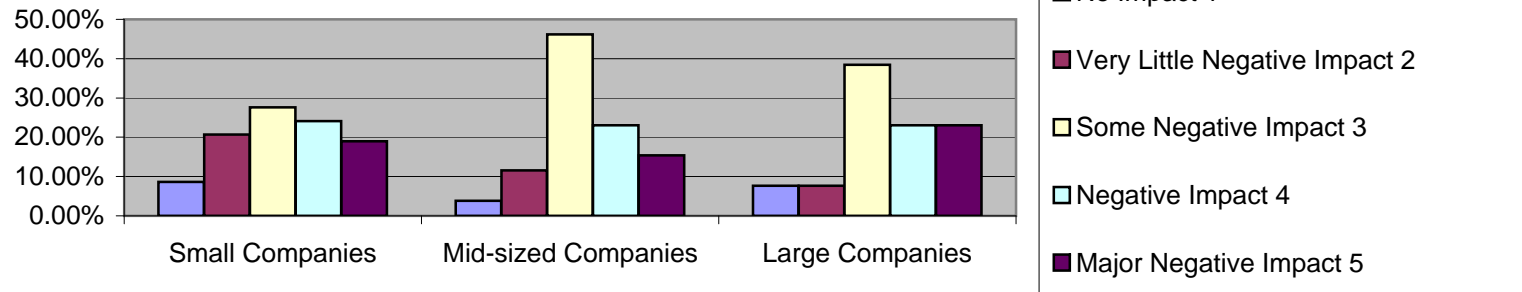
21st Century Supply Chain Transformation Survey Data

Which of the following are the most important to your company's success in the next three years? (Select up to three)					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Highly trained workforce	60.00%	61.54%	53.85%		59.60%
Integration of latest technologies	41.67%	38.46%	38.46%		40.40%
Product innovation	33.33%	30.77%	15.38%		30.30%
Increasing global sales	33.33%	34.62%	38.46%		34.34%
Lowering production costs	58.33%	69.23%	53.85%		60.61%
Increasing customer service	33.33%	34.62%	23.08%		32.32%
Supply Chain integration	30.00%	23.08%	53.85%		31.31%

All Companies

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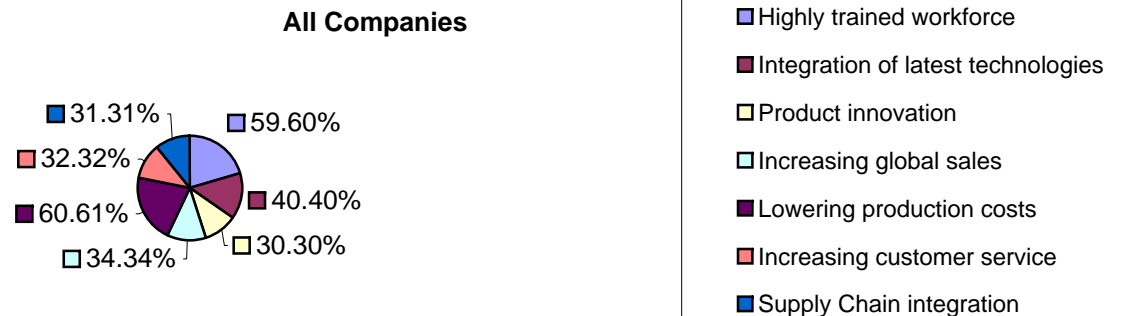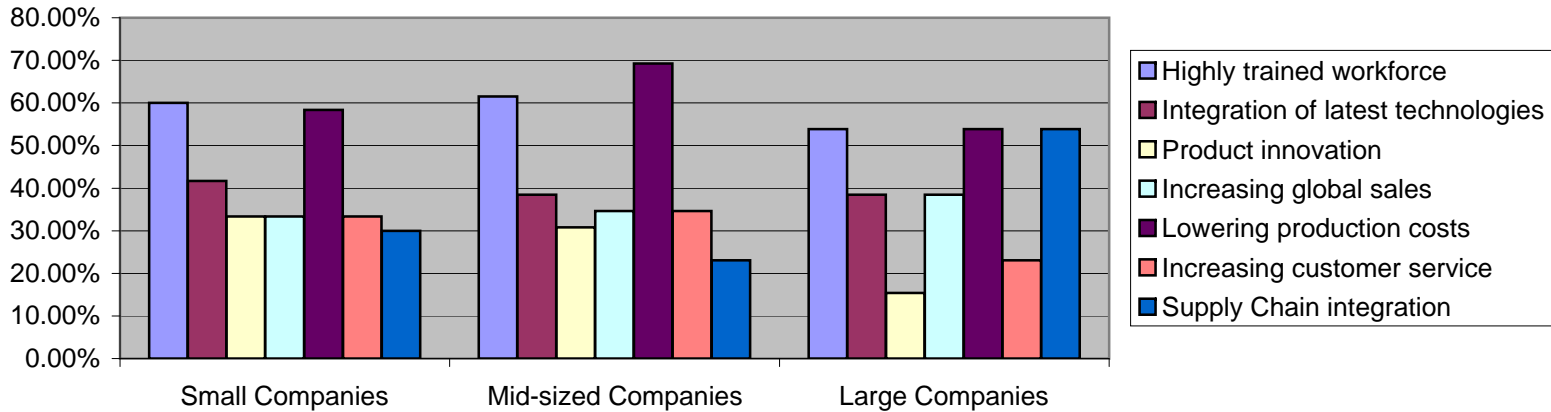
How does your company currently meet training needs?(Check all that apply, minimum of one)					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Training developed internally	98.25%	80.77%	92.31%		92.71%
Local Community College	21.05%	42.31%	38.46%		29.17%
University	3.51%	19.23%	53.85%		14.58%
Technical Schools	17.54%	19.23%	30.77%		19.79%
Online training providers	10.53%	11.54%	46.15%		15.62%
Private/consultant training providers	35.09%	42.31%	69.23%		41.67%
Professional Associations	14.04%	15.38%	38.46%		17.71%
State funded training programs/ETP funds	19.30%	19.23%	38.46%		21.88%
Federally funded training programs	5.26%	0.00%	15.38%		5.21%
Other (please specify)	3.51%	11.54%	0.00%		5.21%
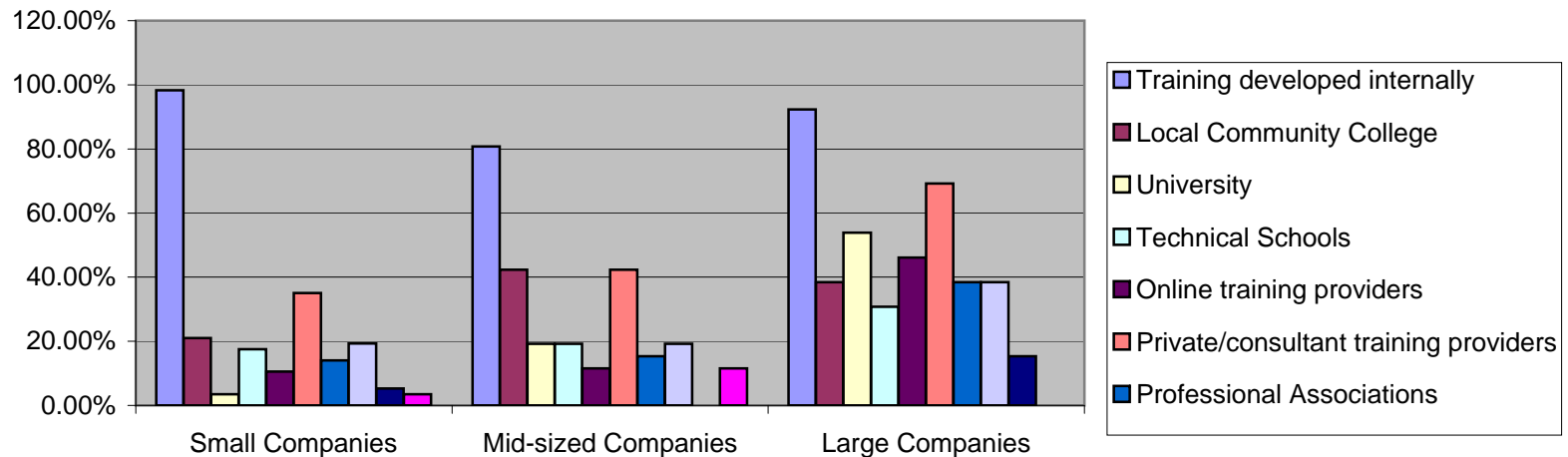
Others
WTAAC
Customer furnished assistance
Self paced Professional Development
Courses and conferences
Experience

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21st Century Supply Chain Transformation Survey Data

All Companies

- ☐ Training developed internally
- ■ Local Community College
- ☐ University
- ☐ Technical Schools
- ■ Online training providers
- ☐ Private/consultant training providers
- ■ Professional Associations
- ☐ State funded training programs/ETP funds
- ■ Federally funded training programs
- ■ Other (please specify)

Pie chart labels: 92.71%, 29.17%, 14.58%, 19.79%, 15.62%, 41.67%, 17.71%, 21.88%, 5.21%, 5.21%

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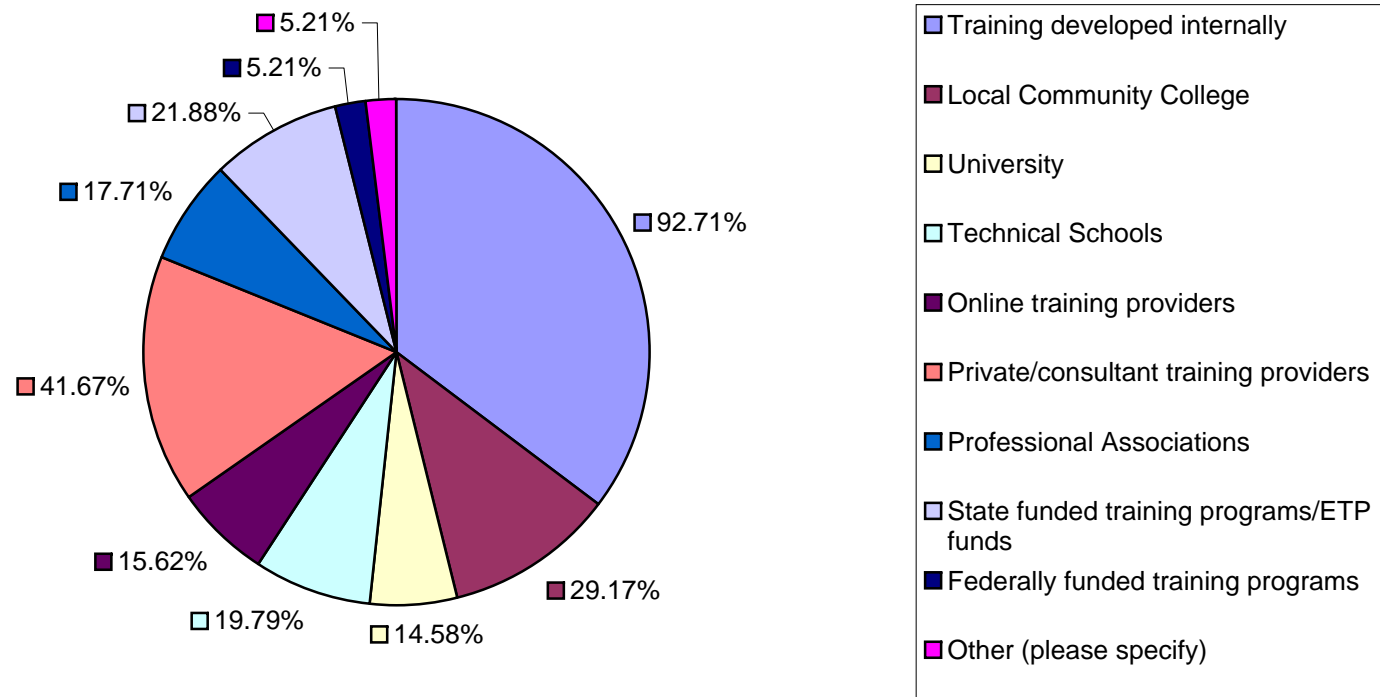
21st Century Supply Chain Transformation Survey Data

What are the predominate reasons your company provides training to your employees currently?(Select up to three)					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Required by state/local government	10.34%	23.08%	30.77%		16.49%
Provision in labor contract	1.72%	3.85%	7.69%		3.09%
Attract new workers	12.07%	23.08%	30.77%		17.53%
Keep current workforce skilled in latest technologies	75.86%	80.77%	76.92%		77.32%
Increase basic skills of entry level employees	74.14%	57.69%	46.15%		65.98%
Business necessity (Survival)	67.24%	61.54%	69.23%		65.98%
Other (please specify)	0.00%	0.00%	7.69%		1.03%

What are the predominate reasons your company provides training to your employees currently?

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21st Century Supply Chain Transformation Survey Data

All Companies

- 1.03%
- 16.49%
- 3.09%
- 17.53%
- 65.98%
- 77.32%
- 65.98%

- □ Required by state/local government
- □ Provision in labor contract
- □ Attract new workers
- □ Keep current workforce skilled in latest technologies
- ■ Increase basic skills of entry level employees
- □ Business necessity (Survival)
- ■ Other (please specify)

21st Century Supply Chain Transformation Survey Data

answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Does your company spend more, less or about the same on training as it did five years ago.					
More	58.33%	50.00%	61.54%		56.57%
About the same	40.00%	42.31%	23.08%		38.38%
Less	1.67%	7.69%	15.38%		5.05%

Does your company spend more, less or about the same on training as it did five years ago.

All Companies

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21st Century Supply Chain Transformation Survey Data

answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Approximately what percent of your employees receive training provided by your company each year?					
< 15 %	16.67%	8.33%	7.69%		13.40%
16% to 25 %	18.33%	12.50%	7.69%		15.46%
26% to 50%	16.67%	20.83%	15.38%		17.53%
51% to 75 %	16.67%	33.33%	15.38%		20.62%
76 % to 100 %	31.67%	25.00%	53.85%		32.99%

Approximately what percent of your employees receive training provided by your company each year?

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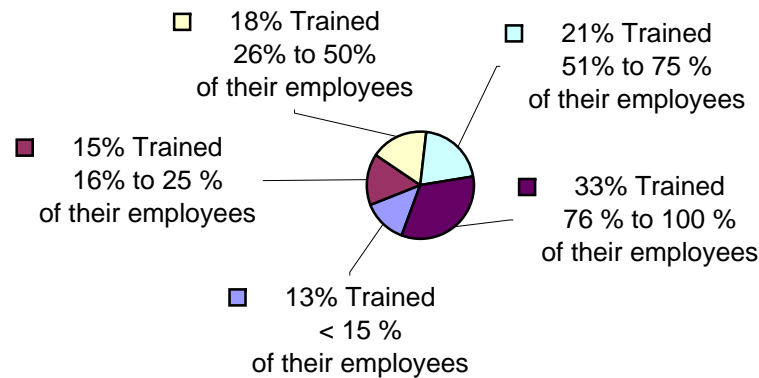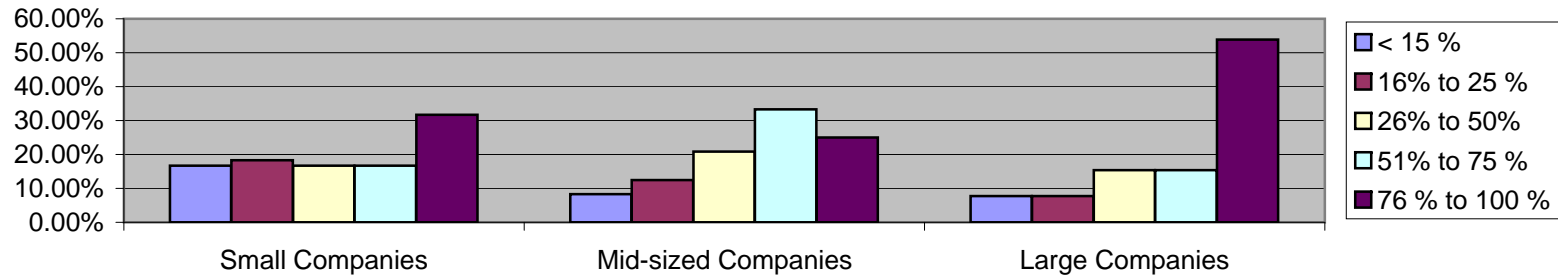
How prepared for an entry-level job with your company are applicants with a certificate from a community college?					
answer options	Small Companies	Mid-sized Companies	Large Companies		All Companies
Poorly	41.38%	20.00%	69.23%		39.58%
Adequately	58.62%	80.00%	30.77%		60.42%
Fully	0.00%	0.00%	0.00%		0.00%

How prepared for an entry-level job with your company are applicants with a certificate from a community college?

All Companies

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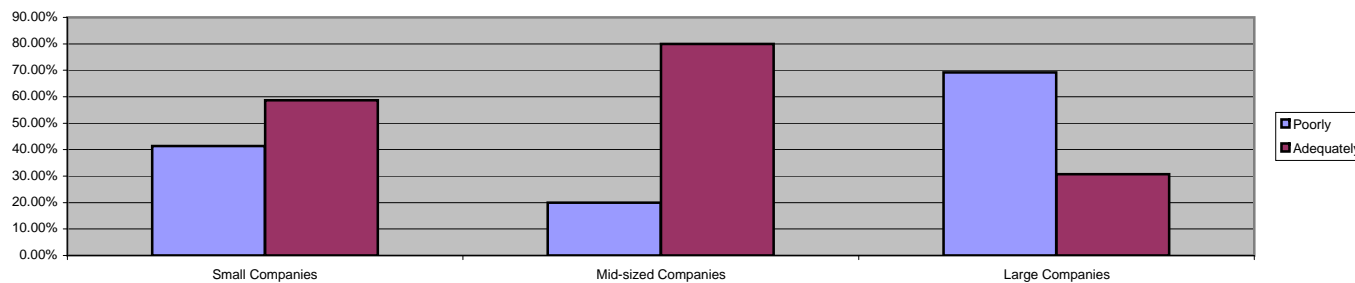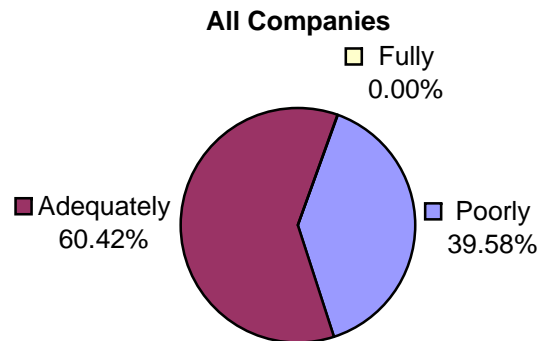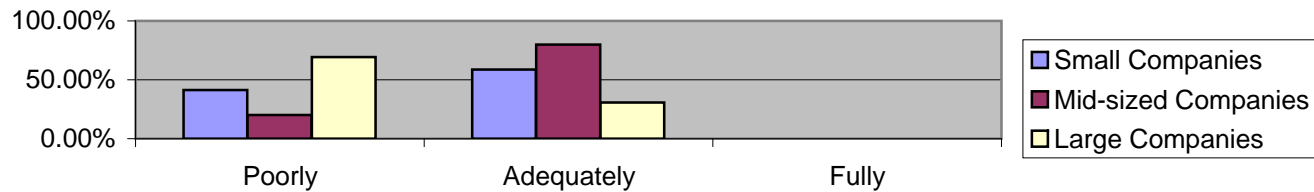
21st Century Supply Chain Transformation Survey Data

Indicate how important training in the following areas is for your company in the next 3 years? (Please be sure to check an answer in each

Small Companies

answer options	Not important 1	Somewhat important 2	Neutral 3	Important 4	Very important 5	N/A	Rating Average
Logistics and transportation best practices	22	14	9	0	2	7	1.85
Purchasing and procurement best practices	6	18	5	18	6	3	3
Manufacturing best practices	4	4	4	16	24	4	4
Finance and accounting management best practices	4	11	14	16	7	4	3.21
Sales and marketing best practices	5	8	9	21	11	2	3.46
Information technology best practices	4	5	16	12	18	1	3.64
Forecasting and time series analysis	9	10	11	14	5	7	2.92
Engineering modeling and testing	11	7	5	12	13	7	3.19
Design modeling	12	7	7	14	9	6	3.02
Crimping, Cabling, and Harnessing	21	9	6	3	2	15	1.93

Mid-sized Companies

answer options	Not important 1	Somewhat important 2	Neutral 3	Important 4	Very important 5	N/A	Rating Average
Logistics and transportation best practices	2	8	6	4	1	1	2.71
Purchasing and procurement best practices	2	2	4	8	9	0	3.8
Manufacturing best practices	1	1	1	8	13	1	4.29
Finance and accounting management best practices	1	2	9	6	7	0	3.64
Sales and marketing best practices	1	2	5	8	9	0	3.88
Information technology best practices	0	1	8	10	6	0	3.84
Forecasting and time series analysis	1	2	9	9	4	0	3.52
Engineering modeling and testing	0	0	6	11	6	2	4
Design modeling	0	0	7	11	6	1	3.96
Crimping, Cabling, and Harnessing	8	1	6	1	1	8	2.18

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21st Century Supply Chain Transformation Survey Data

Large Companies

answer options	Not important 1	Somewhat important 2	Neutral 3	Important 4	Very important 5	N/A	Rating Average
Logistics and transportation best practices	0	5	3	4	1	0	3.08
Purchasing and procurement best practices	0	1	0	6	6	0	4.31
Manufacturing best practices	0	0	1	2	9	1	4.67
Finance and accounting management best practices	1	1	0	6	5	0	4
Sales and marketing best practices	0	1	0	5	7	0	4.38
Information technology best practices	0	0	1	4	7	1	4.5
Forecasting and time series analysis	0	1	4	4	4	0	3.85
Engineering modeling and testing	0	0	2	3	6	2	4.36
Design modeling	0	0	3	2	6	2	4.27
Crimping, Cabling, and Harnessing	1	3	3	0	2	4	2.89

All Companies

answer options	Not important 1	Somewhat important 2	Neutral 3	Important 4	Very important 5	N/A	Rating Average
Logistics and transportation best practices	24	27	18	8	4	8	2.27
Purchasing and procurement best practices	8	21	9	32	21	3	3.41
Manufacturing best practices	5	5	6	26	46	6	4.17
Finance and accounting management best practices	6	14	23	28	19	4	3.44
Sales and marketing best practices	6	11	14	34	27	2	3.71
Information technology best practices	4	6	25	26	31	2	3.8
Forecasting and time series analysis	10	13	24	27	13	7	3.23
Engineering modeling and testing	11	7	13	26	25	11	3.57
Design modeling	12	7	17	27	21	9	3.45
Crimping, Cabling, and Harnessing	30	13	15	4	5	27	2.12

21st Century Supply Chain Transformation Survey Data

Indicate how important training in the following space related areas is for your company in the next 3 years?(Please be sure to check an answer in each row.)

Small Companies

answer options	Not important 1	Somewhat important 2	Neutral 3	Important 4	Very important 5	N/A	Rating Average
Designing Systems for Space Radiation Environments	18	6	8	4	0	20	1.94
Initial General Space Hardware Training	18	2	10	3	1	22	2.03
Launch Vehicle Environments, Loads and Testing	19	2	8	5	2	20	2.14
Performance, Reliability, Redundancy for Space Products	14	6	8	7	3	18	2.45
Remote sensing for Earth Science Applications	22	3	6	2	0	23	1.64
Space Environment - Implications for Spacecraft Design	19	3	4	7	2	21	2.14
Space Environment and Spacecraft Environmental Hazards	20	3	5	5	2	21	2.03
Space Systems Fundamentals	16	4	7	4	3	22	2.24
Space Vehicle Mechanisms: Elements of Successful Design	17	3	6	4	4	22	2.26
Spacecraft Connector Mate and Demate	22	1	6	1	1	25	1.65
Spacecraft Thermal Control	19	4	4	4	2	23	1.97

21st Century Supply Chain Transformation Survey Data

Mid-sized Companies							
answer options	Not important 1	Somewhat important 2	Neutral 3	Important 4	Very important 5	N/A	Rating Average
Designing Systems for Space Radiation Environments	8	2	2	2	1	9	2.07
Initial General Space Hardware Training	8	0	4	3	1	8	2.31
Launch Vehicle Environments, Loads and Testing	7	0	1	5	3	7	2.81
Performance, Reliability, Redundancy for Space Products	4	1	4	5	3	7	3.12
Remote sensing for Earth Science Applications	9	0	2	2	1	10	2
Space Environment - Implications for Spacecraft Design	8	0	2	4	2	8	2.5
Space Environment and Spacecraft Environmental Hazards	8	0	2	3	2	9	2.4
Space Systems Fundamentals	8	1	2	3	2	8	2.38
Space Vehicle Mechanisms: Elements of Successful Design	7	1	2	6	1	7	2.59
Spacecraft Connector Mate and Demate	6	1	4	3	1	9	2.47
Spacecraft Thermal Control	7	0	4	3	1	9	2.4

21st Century Supply Chain Transformation Survey Data

answer options	Not important 1	Somewhat important 2	Neutral 3	Important 4	Very important 5	N/A	Rating Average
Large Companies							
Designing Systems for Space Radiation Environments	3	1	1	3	2	3	3
Initial General Space Hardware Training	3	1	0	5	1	3	3
Launch Vehicle Environments, Loads and Testing	4	1	0	3	2	2	2.8
Performance, Reliability, Redundancy for Space Products	3	1	0	2	3	4	3.11
Remote sensing for Earth Science Applications	3	2	2	0	2	4	2.56
Space Environment - Implications for Spacecraft Design	3	0	2	2	2	4	3
Space Environment and Spacecraft Environmental Hazards	3	0	1	3	2	4	3.11
Space Systems Fundamentals	3	0	1	3	2	4	3.11
Space Vehicle Mechanisms: Elements of Successful Design	3	0	1	2	3	4	3.22
Spacecraft Connector Mate and Demate	3	0	3	2	2	3	3
Spacecraft Thermal Control	2	0	3	2	2	4	3.22

21st Century Supply Chain Transformation Survey Data

All Companies							
answer options	Not important 1	Somewhat important 2	Neutral 3	Important 4	Very important 5	N/A	Rating Average
Designing Systems for Space Radiation Environments	29	9	11	9	3	32	2.15
Initial General Space Hardware Training	29	3	14	11	3	33	2.27
Launch Vehicle Environments, Loads and Testing	30	3	9	13	7	29	2.42
Performance, Reliability, Redundancy for Space Products	21	8	12	14	9	29	2.72
Remote sensing for Earth Science Applications	34	5	10	4	3	37	1.88
Space Environment - Implications for Spacecraft Design	30	3	8	13	6	33	2.37
Space Environment and Spacecraft Environmental Hazards	31	3	8	11	6	34	2.29
Space Systems Fundamentals	27	5	10	10	7	34	2.41
Space Vehicle Mechanisms: Elements of Successful Design	27	4	9	12	8	33	2.5
Spacecraft Connector Mate and Demate	31	2	13	6	4	37	2.11
Spacecraft Thermal Control	28	4	11	9	5	36	2.28